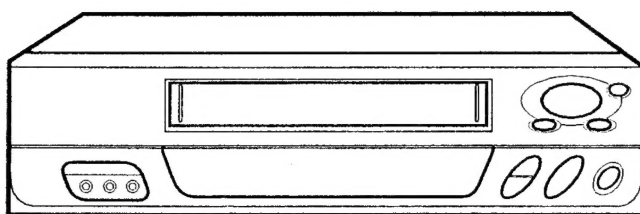


TEVION®

SERVICE MANUAL

VIDEO CASSETTE RECORDER



**ORIGINAL
CHASSIS CODE A**

SERVICING NOTICES ON CHECKING

1. KEEP THE NOTICES

As for the places which need special attentions, they are indicated with the labels or seals on the cabinet, chassis and parts. Make sure to keep the indications and notices in the operation manual.

2. USE THE DESIGNATED PARTS

The parts in this equipment have the specific characters of incombustibility and withstand voltage for safety. Therefore, the part which is replaced should be used the part which has the same character.

Especially as to the important parts for safety which is indicated in the circuit diagram or the table of parts as a ⚠ mark, the designated parts must be used.

3. PUT PARTS AND WIRES IN THE ORIGINAL POSITION AFTER ASSEMBLING OR WIRING

There are parts which use the insulation material such as a tube or tape for safety, or which are assembled in the condition that these do not contact with the printed board. The inside wiring is designed not to get closer to the pyrogenic parts and high voltage parts. Therefore, put these parts in the original positions.

4. PERFORM A SAFETY CHECK AFTER SERVICING

Confirm that the screws, parts and wiring which were removed in order to service are put in the original positions, or whether there are the portions which are deteriorated around the serviced places serviced or not. Check the insulation between the antenna terminal or external metal and the AC cord plug blades. And be sure the safety of that.

HOW TO ORDER PARTS

Please include the following informations when you order parts. (Particularly the CHASSIS CODE.)

1. MODEL NUMBER and CHASSIS CODE

You can find it in the back of your unit.

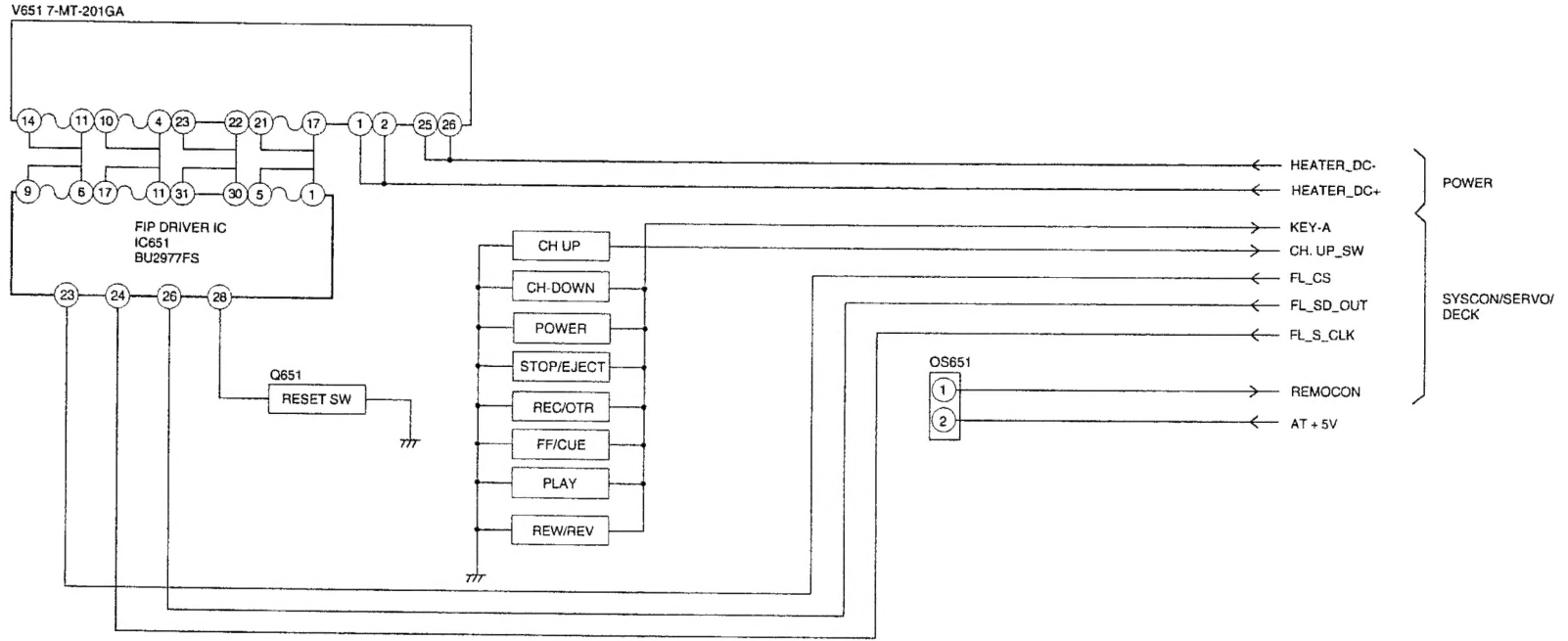
2. PART NO. and DESCRIPTION

You can find it in your SERVICE MANUAL.

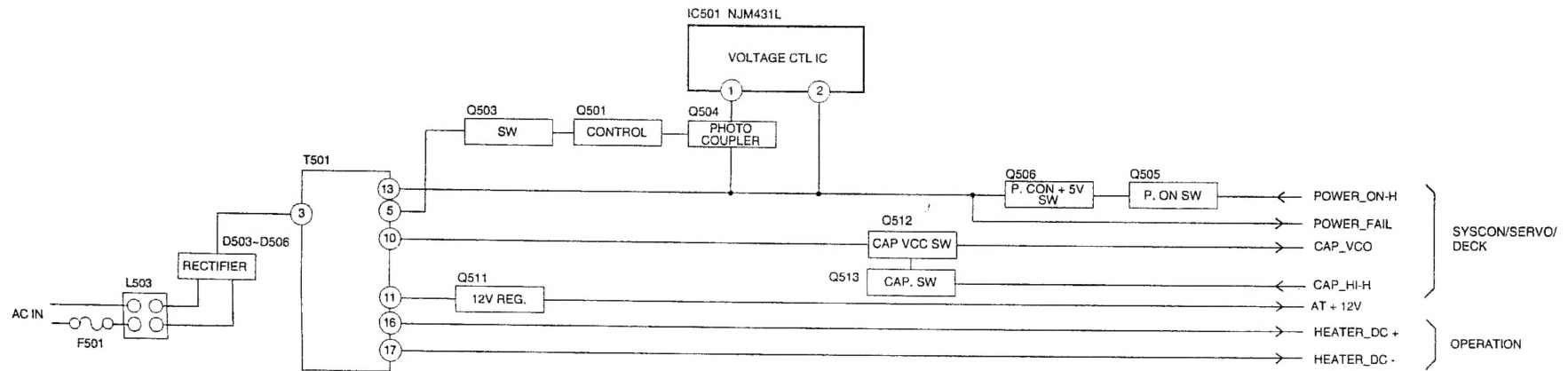


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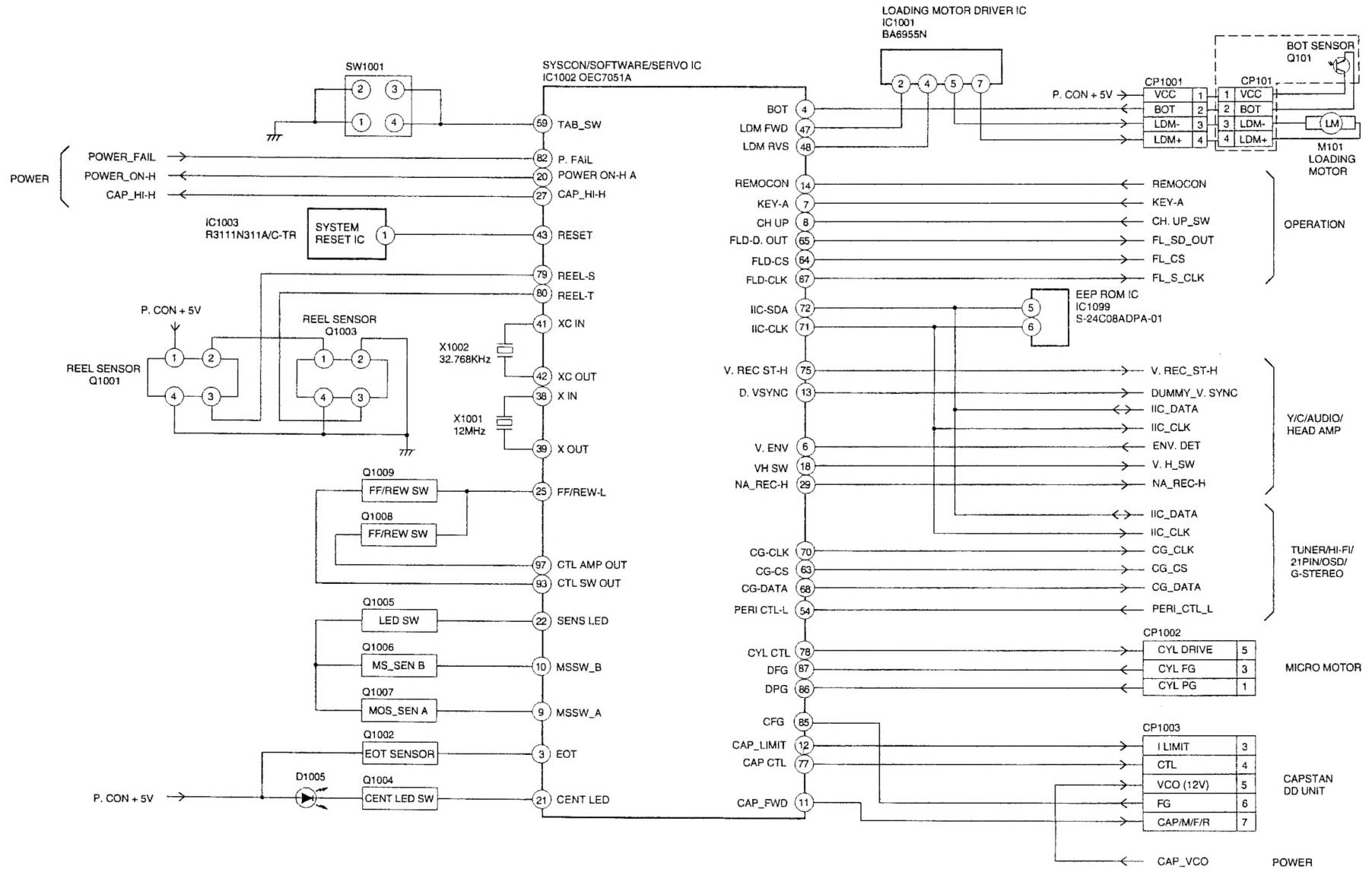
OPERATION BLOCK DIAGRAM



POWER BLOCK DIAGRAM



SYSTEM CONTROL/SERVO/DECK BLOCK DIAGRAM



CONTENTS

| | |
|---|------------|
| SERVICING NOTICES ON CHECKING | A1-1 |
| HOW TO ORDER PARTS | A1-1 |
| CONTENTS | A2-1 |
| GENERAL SPECIFICATIONS | A3-1~A3-6 |
| DISASSEMBLY INSTRUCTIONS | |
| 1. REMOVAL OF MECHANICAL PARTS AND P. C. BOARDS | B1-1 |
| 2. REMOVAL OF DECK PARTS | B2-1~B2-5 |
| KEY TO ABBREVIATIONS | C1-1, C1-2 |
| ERROR CODE LIST | C2-1 |
| SERVICE MODE LIST | C2-1 |
| PREVENTIVE CHECKS AND SERVICE INTERVALS | C3-1, C3-2 |
| NOTE FOR THE REPLACING OF MEMORY IC | C4-1 |
| SERVICING FIXTURES AND TOOLS | C5-1 |
| PREPARATION FOR SERVICING | C5-1 |
| MECHANICAL ADJUSTMENTS | D1-1~D1-4 |
| ELECTRICAL ADJUSTMENTS | D2-1, D2-2 |
| BLOCK DIAGRAMS | |
| Y/C/AUDIO/HEAD AMP | E-1, E-2 |
| TUNER/HI-FI/21PIN/OSD/G-STEREO | E-3, E-4 |
| SYSTEM CONTROL/SERVO/DECK | E-5, E-6 |
| OPERATION/POWER | E-7, E-8 |
| PRINTED CIRCUIT BOARDS | |
| SYSCON | F-1~F-4 |
| OPERATION/DECK | F-5 |
| SCHEMATIC DIAGRAMS | |
| Y/C/AUDIO/HEAD AMP | G-1, G-2 |
| SYSTEM CONTROL/SERVO | G-3, G-4 |
| POWER | G-5, G-6 |
| OPERATION | G-7, G-8 |
| TUNER/HI-FI | G-9, G-10 |
| 21PIN/OSD | G-11, G-12 |
| G-STEREO | G-13, G-14 |
| DECK | G-15, G-16 |
| INTERCONNECTION DIAGRAM | G-17, G-18 |
| WAVEFORMS | H-1 |
| MECHANICAL EXPLODED VIEW | I-1 |
| CHASSIS EXPLODED VIEWS | I-2, I-3 |
| MECHANICAL REPLACEMENT PARTS LIST | J1-1 |
| CHASSIS REPLACEMENT PARTS LIST | J2-1 |
| ELECTRICAL REPLACEMENT PARTS LIST | J3-1, J3-2 |

GENERAL SPECIFICATIONS

G-1.Outline of the Product

_____2_____ -Speed 1/2" Video Cassette Recorder

G-2.VCR Format

VHS Standard ☐NTSC ☒PAL ☐SECAM ☐PAL-M ☐PAL-N
☒VHS Hi-Fi Audio System

G-3.Video Recording System

: Rotary, slant azimuth two head helical scan system

Luminance Component : FM recording

Chrominance Component: Low frequency converted direct recording

G-4.Broadcasting System

_____CCIR_____ System _____B/G_____

G-5.Color System

☐NTSC ☒PAL ☐SECAM or Monochrome

G-6.NTSC Playback(PAL60Hz)

☒Yes ☐No

G-7.MESECAM

☐Yes ☒No

G-8.Cassette Tape

☒VHS type video cassette tape Width 12.65mm (1/2 Inch)

☐VHS-C type video cassette tape Width 12.65mm (1/2 Inch)

G-9.Tape Speed

NTSC or PAL-M

PAL or SECAM

☒SP 33.35 mm/sec

☒SP 23.39 mm/sec

☐LP 16.67 mm/sec

☒LP 11.69 mm/sec

☐SLP 11.12 mm/sec

G-10.Recording/Playback Time

NTSC or PAL-M(NTSC Playback Only)

☒at SP Mode Max. 210 min. (with T-210 cassette)

☐at LP Mode Max. 420 min. (with T-210 cassette)

☐at SLP Mode Max. 630 min. (with T-210 cassette)

PAL or SECAM

☒at SP Mode Max. 300 min. (with E-300 cassette)

☒at LP Mode Max. 600 min. (with E-300 cassette)

G-11.Deck

☐OVD-5 ☐OVD-6 ☒OVD-6S ☐OVD-6S(Vertical)

G-12.Rewind/Fast Forward Time(Approx.)

☒ FF: 1'30"/Rew:1'12" (with ☐T-120 cassette ☒E-180 cassette)

G-13.Search Speed

☒SP 5 and 7 Times (PAL)

☒LP 7 and 13 Times (PAL)

☒SP 3 and 5 Times (NTSC)

G-14.Slow Speed

☒SP 1/5~1/30 Times

☒LP 1/5~1/30 Times

☐SLP _____ Times

G-15.Frame Advance

☒SP 1/10 Times

☒LP 1/10 Times

☐SLP _____ Times

G-16.Antenna Input Impedance

VHF/UHF 75 ohm unbalanced

GENERAL SPECIFICATIONS

G-17.Tuner and Receiving Channel

Tuner: Contactless Electric Tuner

☐Oscar(W/O HYPER) ☒Oscar(W/ HYPER) ☐France CATV ☐Others

Coverage channel

E 2~E4, X~Z+2, S1~S10, E5~E12, S11~S41, E21~E69

Tuning System

☒Frequency syn. ☐Voltage syn. ☐Others

G-18.Preset Channel

80 channels

G-19.Intermediate Frequency

| | | | |
|-------------|-----------------|---------------------|---------------------|
| Picture(FP) | <u>38.9</u> MHz | <u> </u> MHz | <u> </u> MHz |
| Sound (FS) | <u>33.4</u> MHz | <u> </u> MHz | <u> </u> MHz |
| FP-FS | <u>5.5</u> MHz | <u> </u> MHz | <u> </u> MHz |

G-20.RF Converter Output

| | | |
|-----------------|--|----------------|
| Channel | <u>36</u> ch. | <u>23 ~ 69</u> |
| Level/Impedance | <u>73</u> dBμ / | <u>75</u> ohm |
| Sound Selector | <input type="checkbox"/> Yes(<input type="checkbox"/> G <input type="checkbox"/> I <input type="checkbox"/> K) <input checked="" type="checkbox"/> No | |

G-21.Stereo/Dual TV Sound

☒Yes(☐NICAM ☒GERMAN ☐USA ☐JAPAN) ☐No

G-22.Tuner Sound Muting

☒Yes ☐No

G-23.Video Signal

| | | |
|----------------------------------|------------------|---------------|
| Input Level | <u>1</u> Vp-p / | <u>75</u> ohm |
| Output Level | <u>1</u> Vp-p / | <u>75</u> ohm |
| S/N Ratio | <u>53</u> dB | (Weighted) |
| Horizontal Resolution at SP Mode | <u>240</u> Lines | |

G-24.Audio Signal

| | | | |
|-----------------------|-------------|----------------------|-------------------------------|
| Input Level | Microphone | <u>-</u> dB / | <u>-</u> Kohm |
| | Line | <u>-3.8</u> dB / | <u>50</u> Kohm |
| | RCA | <u>-3.8</u> dB / | <u>50</u> Kohm |
| Output Level | Line | <u>-3.8</u> dB / | <u>1</u> Kohm |
| | RCA | <u>-3.8</u> dB / | <u>1</u> Kohm(0dB=0.775 Vrms) |
| S/N Ratio at SP Mode | | <u>42</u> dB | (Weighted) |
| Harmonic Distortion : | | <u>1.5</u> % | (1KHz) |
| Frequency Response : | at SP Mode | <u>100</u> Hz ~ | <u>10</u> KHz |
| | at LP Mode | <u>100</u> Hz ~ | <u>5</u> KHz |
| | at SLP Mode | <u> </u> Hz ~ | <u> </u> KHz |

Hi-Fi Model's Spec ☐NONE

Depth Multiplex Recording Rotary, Slant Azimuth Two Head

System Helical Scan System

Dynamic Range : More than 75 dB

Wow And Flutter : Less than 0.01 % Wrms

Channel Separation : More than 60 dB

Harmonic Distortion : Less than 1 %

G-25.Heads

| | | | |
|-----------------|-------------------------------------|----------|---|
| Video | <input checked="" type="checkbox"/> | <u>4</u> | Rotary Heads |
| FM Audio | <input checked="" type="checkbox"/> | <u>2</u> | Rotary Heads |
| Audio / Control | <input checked="" type="checkbox"/> | <u>1</u> | Stationary Head (<input checked="" type="checkbox"/> Mono <input type="checkbox"/> Stereo(L,R)) |
| Erase | <input checked="" type="checkbox"/> | <u>1</u> | Full Track Erase |

G-26.Motor: 3 Motors

☒Tape/Cassette Loading
☒Cylinder (Direct Drive)
☒Capstan (Direct Drive)

G-27.Power Source

230 V ☒AC 50Hz ☐AC 60Hz

GENERAL SPECIFICATIONS

G-28.Power Consumption: 14.0 W at AC 230 V 50 Hz(Approx.)
 Stand by: 4.0 W at AC 230 V 50 Hz(Approx.)
 Per Year: - kWh / Year

G-29.Dimensions(Approx.)

380 mm(W) 268 mm(D) 95 mm(H)

G-30.Weight(Approx.) Net : 3.5 Kg (- lbs)
 Gross : 4.5 Kg (- lbs)

G-31.Cabinet Material

Cabinet Front: ☒PS ☒94HB ☐DECABROM
☐ABS ☐94V2 ☐NON-DECA
☐94V0

G-32.Cassette Loading System: Front Cassette Loading System

G-33.Tape Counter: Linear Time Tape Counter

G-34.Protector: ☒Power Fuse ☐Dew Sensor

G-35.Regulation

Safety

| | | | | | |
|--------------------------------|---------------------------------|----------------------------------|--------------------------------|--|--------------------------------|
| <input type="checkbox"/> UL | <input type="checkbox"/> CSA | <input type="checkbox"/> SAA | <input type="checkbox"/> SI | <input checked="" type="checkbox"/> CE | <input type="checkbox"/> SEV |
| <input type="checkbox"/> NEMKO | <input type="checkbox"/> FEMKO | <input type="checkbox"/> DEMKO | <input type="checkbox"/> IEC65 | <input type="checkbox"/> CNS | <input type="checkbox"/> SISIR |
| <input type="checkbox"/> SEMKO | <input type="checkbox"/> NZ | <input type="checkbox"/> HOMOLO | <input type="checkbox"/> SABS | <input type="checkbox"/> GOST | |
| <input type="checkbox"/> NOM | <input type="checkbox"/> AS3159 | <input type="checkbox"/> DENTORI | <input type="checkbox"/> UNE | <input type="checkbox"/> NONE | |

Radiation

| | | | | |
|-------------------------------|----------------------------------|----------------------------------|--|-------------------------------|
| <input type="checkbox"/> FCC | <input type="checkbox"/> DOC | <input type="checkbox"/> PTT | <input checked="" type="checkbox"/> CE | <input type="checkbox"/> SEV |
| <input type="checkbox"/> SABA | <input type="checkbox"/> SI | <input type="checkbox"/> NZ | <input type="checkbox"/> HOMOLO | <input type="checkbox"/> UNE |
| <input type="checkbox"/> CNS | <input type="checkbox"/> CISPR13 | <input type="checkbox"/> DENTORI | <input type="checkbox"/> AS/NZS | <input type="checkbox"/> NONE |

G-36.Temperature

Operation 5 °C ~ 40 °C
 Storage -20 °C ~ 60 °C

G-37.Operating Humidity : Less than 80 %RH

G-38.Clock and Timer

Calendar : 1990/1/1 ~ 2081/12/31
 Built-in 1 Month 8 Events Programmable Timer
 One Touch Recording : Max Time SP 5 , LP 10 Hours

G-39.Timer back up Time

More than 30 Minutes (at Power Off Mode)

G-40.Terminals

☒VHF/UHF Antenna Input/Output ☒Din Type ☐F-Type ☐France Type
☒Front Video Input<RCA ø8.3>
☒Front Audio Input<RCA ø8.3> x2
☐Rear Video Input<RCA ø8.3>
☐Rear Audio Input<RCA ø8.3>
☐Rear Video Output<RCA ø8.3>
☒Rear Audio Output<RCA ø8.3> x2
☒21 Pin (x 2)

G-41.Indicator

| | | | | |
|--|--|-------------------------------------|--|---|
| <input type="checkbox"/> Power () | <input type="checkbox"/> Stand By () | <input type="checkbox"/> Rec () | <input type="checkbox"/> Repeat () | <input type="checkbox"/> Tape In () |
| <input type="checkbox"/> Kurupika Guide () | <input type="checkbox"/> One Touch Playback () | | | |

GENERAL SPECIFICATIONS

G-42.Display

Fluorescent Indicator

- | | | | |
|---|---|---|---|
| <input checked="" type="checkbox"/> Clock/Counter, Channel, Timer Rec, OTR, Play, Rec, FF(Cue), Rew(Rev), | | | |
| Stop, ATR, Eject | | <input checked="" type="checkbox"/> Pause | <input checked="" type="checkbox"/> Still |
| <input type="checkbox"/> WKL, Y.M.D, Start, End | | <input type="checkbox"/> AFT | <input type="checkbox"/> Repeat |
| <input checked="" type="checkbox"/> VCR | <input type="checkbox"/> Memory | <input type="checkbox"/> Index | <input checked="" type="checkbox"/> VPS |
| <input checked="" type="checkbox"/> SP | <input checked="" type="checkbox"/> LP <input type="checkbox"/> SLP | <input type="checkbox"/> AM | <input type="checkbox"/> PM |
| <input checked="" type="checkbox"/> F1,F2 | <input checked="" type="checkbox"/> RF-Output CH | | |

On Screen Display

- | | |
|---|---|
| <input checked="" type="checkbox"/> Menu | |
| <input checked="" type="checkbox"/> ATTS | |
| <input checked="" type="checkbox"/> Timer Rec Set | |
| <input checked="" type="checkbox"/> VCR Extension | <input checked="" type="checkbox"/> Auto Repeat On/Off |
| | <input checked="" type="checkbox"/> Scene Repeat |
| | <input checked="" type="checkbox"/> Audio Dubbing |
| <input checked="" type="checkbox"/> VCR Set-Up | <input type="checkbox"/> NICAM Auto/Off |
| | <input checked="" type="checkbox"/> Audio Mix On/Off |
| | <input type="checkbox"/> Color System |
| | <input checked="" type="checkbox"/> Sharpness |
| | <input checked="" type="checkbox"/> BBE On/Off |
| <input checked="" type="checkbox"/> CH Set-Up | <input checked="" type="checkbox"/> CH Tuning <input type="checkbox"/> Auto Tuning |
| | <input checked="" type="checkbox"/> CH Mapping |
| <input checked="" type="checkbox"/> System Set-Up | <input checked="" type="checkbox"/> Clock Set(<input checked="" type="checkbox"/> Calendar <input type="checkbox"/> 12H <input checked="" type="checkbox"/> 24H) |
| | <input checked="" type="checkbox"/> Language |
| <input checked="" type="checkbox"/> G-CODE(or SHOWVIEW or PLUSCODE)No. Entry | |
| <input type="checkbox"/> NICAM M1/2, NICAM Off, Audio Output | |
| <input checked="" type="checkbox"/> Stereo, Audio Output, Bilingual | |
| <input type="checkbox"/> Stereo, Audio Output | |
| <input checked="" type="checkbox"/> Play/Stop/FF/Rew/Rec/OTR/Pause/Tape In/Eject(Symbol Mark) | |
| <input checked="" type="checkbox"/> CH/AV | <input checked="" type="checkbox"/> Clock/Date <input type="checkbox"/> Repeat |
| <input checked="" type="checkbox"/> Tape Counter | <input checked="" type="checkbox"/> Index <input type="checkbox"/> Hotel Lock <input checked="" type="checkbox"/> Tape Speed |
| <input checked="" type="checkbox"/> Manual Tracking(Bar Setting) | <input checked="" type="checkbox"/> Hi-Fi <input checked="" type="checkbox"/> S-Repeat/SR-R/SR-PLAY |
| <input checked="" type="checkbox"/> VPS | <input type="checkbox"/> PDC <input checked="" type="checkbox"/> Rec END Search |

G-43.OSD Language

- ☒ Eng ☒ Ger ☒ Fre ☒ Spa ☒ Ita ☐ Por ☐ Jan

OSD Language Setting

- ☐ Eng ☒ Ger ☐ Fre ☐ Spa ☐ Ita ☐ Por ☐ Jan
- ☐ Not Applicable

G-44.Carton

Master Carton: ☐ Need ☒ No Need

Content: _____ Set

Material: _____ / _____ Corrugated Carton

Dimensions: _____ mm(W) _____ mm(D) _____ mm(H)

Description of Origin ☐ Yes ☐ No

Gift Box ☒ Need(Buyer Supply) ☐ No Need

Material ☐ Single/Brown Corrugated Carton (☐ with Photo Label)

☐ Single/White Corrugated Carton (☐ with Photo Label)

☒ Single Full Color Carton W/Photo

Dimensions: _____ mm(W) _____ mm(D) _____ mm(H)

Design: As Per _____ 's

Description of Origin: ☐ Yes ☐ No

Drop Test Natural Dropping At 1 Corner / 3 Edges / 6 Surfaces

Height ☐ 25cm ☐ 31cm ☐ 46cm ☐ 62cm ☒ 80cm ☐ 100cm

Container Stuffing: 2,206 Sets / 40' container

GENERAL SPECIFICATIONS

G-45.Accessories

- | | |
|--|--|
| <input checked="" type="checkbox"/> Owner's Manual (<input checked="" type="checkbox"/> W/ Guarantee Card) [German] | <input type="checkbox"/> Dew Caution Sheet |
| <input checked="" type="checkbox"/> Remote Control Unit | <input checked="" type="checkbox"/> Battery (UM- <u>4</u> x <u>2</u>) |
| <input type="checkbox"/> Video Cassette Tape | <input type="checkbox"/> Toll Free Insert Sheet |
| <input type="checkbox"/> Safety Tip | <input type="checkbox"/> Audio-Video Cord (RCA) |
| <input type="checkbox"/> Guarantee Card | <input checked="" type="checkbox"/> Quick Set-Up Sheet |
| <input type="checkbox"/> Warning Sheet | <input type="checkbox"/> U/V Mixer |
| <input type="checkbox"/> Information Sheet | |
| <input checked="" type="checkbox"/> 75 ohm Coaxial Cable (<input type="checkbox"/> Single Shield <input checked="" type="checkbox"/> Double Shield) | |
| <input type="checkbox"/> 300 ohm to 75 ohm VHF Antenna Adaptor | |
| <input checked="" type="checkbox"/> 21pin Cable(Buyer Supply) | <input type="checkbox"/> Car Cord |

G-46.Other Features

- | | |
|---|---|
| <input checked="" type="checkbox"/> Auto Head Cleaning | <input checked="" type="checkbox"/> Index Search |
| <input checked="" type="checkbox"/> Auto Tracking | <input checked="" type="checkbox"/> Auto Search |
| <input type="checkbox"/> CH Auto Set-Up/Auto Clock | <input checked="" type="checkbox"/> ATS |
| <input checked="" type="checkbox"/> VIDEO PLUS+, SHOWVIEW, G-CODE | <input type="checkbox"/> PDC |
| <input checked="" type="checkbox"/> HQ (VHS Standard High Quality) | <input checked="" type="checkbox"/> VPS |
| <input checked="" type="checkbox"/> Auto Power On, Auto Play, Auto Rewind, Auto Eject, Auto Power Off | |
| <input checked="" type="checkbox"/> Premiere/ Canal+ | |
| <input checked="" type="checkbox"/> Forward / Reverse Picture Search | |
| <input type="checkbox"/> One Touch Playback | |
| <input type="checkbox"/> CATV | <input type="checkbox"/> Channel Lock |
| <input type="checkbox"/> Auto CH Memory | <input type="checkbox"/> Anti Theft |
| <input type="checkbox"/> Hotel Lock | <input type="checkbox"/> CM Skip |
| <input checked="" type="checkbox"/> Audio Dubbing | <input checked="" type="checkbox"/> Remote Control Code 1/2 |
| <input checked="" type="checkbox"/> BBE Audio | <input checked="" type="checkbox"/> Rec END Search |

G-47.Switch

Front

- | | | |
|---|--|--|
| <input checked="" type="checkbox"/> Power | <input checked="" type="checkbox"/> Channel Up | <input checked="" type="checkbox"/> Channel Down |
| <input checked="" type="checkbox"/> Play | <input checked="" type="checkbox"/> F.FWD/Cue | <input checked="" type="checkbox"/> Rew/Rev |
| <input type="checkbox"/> Pause/Still | <input checked="" type="checkbox"/> Eject/Stop | <input checked="" type="checkbox"/> Rec/OTR |
| <input type="checkbox"/> System Select | <input type="checkbox"/> Input Select | <input type="checkbox"/> Output Select |
| <input type="checkbox"/> One Touch Playback | | |

Rear

- ☐ RF-Converter Output Channel Selector(☐ 1 or 2CH ☐ 3 or 4CH)
- ☐ TV/CATV Selector
- ☐ SIF Selector

GENERAL SPECIFICATIONS

G-48.Remote Control

Unit: RC-DK

Glow in the Dark Remocon ☐ Yes

☒ No

Power Source: D.C 3 V Battery UM - 4 x 2

Total 35 Keys

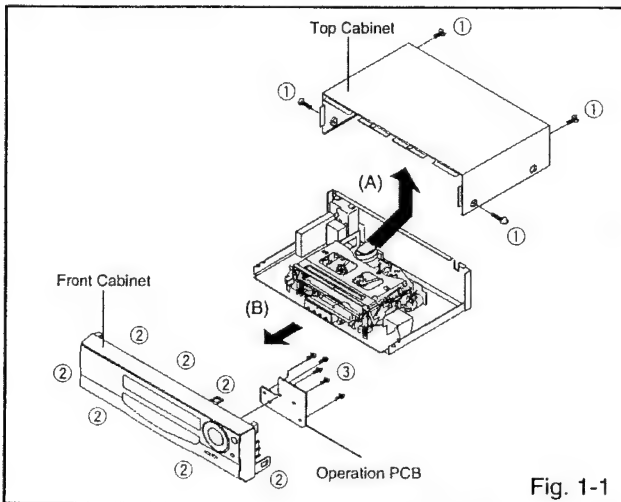
- | | | |
|--|---|---|
| <input checked="" type="checkbox"/> 0/AV | <input checked="" type="checkbox"/> Ch Up/Tr Up | <input checked="" type="checkbox"/> Power |
| <input checked="" type="checkbox"/> 1 | <input checked="" type="checkbox"/> Ch Down/Tr Down | <input checked="" type="checkbox"/> Play/Up(<input checked="" type="checkbox"/> /Slow) |
| <input checked="" type="checkbox"/> 2 | <input type="checkbox"/> /.. | <input checked="" type="checkbox"/> F.FWD/Right |
| <input checked="" type="checkbox"/> 3 | <input checked="" type="checkbox"/> TV/VCR | <input checked="" type="checkbox"/> Rew/Left |
| <input checked="" type="checkbox"/> 4 | <input checked="" type="checkbox"/> Menu | <input checked="" type="checkbox"/> Stop/Down |
| <input checked="" type="checkbox"/> 5 | <input checked="" type="checkbox"/> Enter | <input checked="" type="checkbox"/> REC/OTR |
| <input checked="" type="checkbox"/> 6 | <input checked="" type="checkbox"/> Cancel/CH Skip | <input checked="" type="checkbox"/> Timer Rec |
| <input checked="" type="checkbox"/> 7 | <input checked="" type="checkbox"/> Call | <input checked="" type="checkbox"/> Zero Return |
| <input checked="" type="checkbox"/> 8 | <input checked="" type="checkbox"/> Speed | <input checked="" type="checkbox"/> Counter Reset |
| <input checked="" type="checkbox"/> 9 | <input checked="" type="checkbox"/> Index | <input checked="" type="checkbox"/> Clock/Counter |
| <input type="checkbox"/> Deck-1 | <input checked="" type="checkbox"/> Eject | <input checked="" type="checkbox"/> Pause(<input checked="" type="checkbox"/> /Still) |
| <input type="checkbox"/> Deck-2 | <input checked="" type="checkbox"/> Auto Tracking | <input checked="" type="checkbox"/> END Search |
| <input type="checkbox"/> Tape Mode | <input type="checkbox"/> Audio Dubbing | <input checked="" type="checkbox"/> Audio Select |
| <input type="checkbox"/> Synchro Start | <input type="checkbox"/> Output Select | <input type="checkbox"/> Input Select |
| <input checked="" type="checkbox"/> Program(<input checked="" type="checkbox"/> /Video Plus+ or ShowView) | | |

DISASSEMBLY INSTRUCTIONS

1. REMOVAL OF MECHANICAL PARTS AND P.C. BOARDS

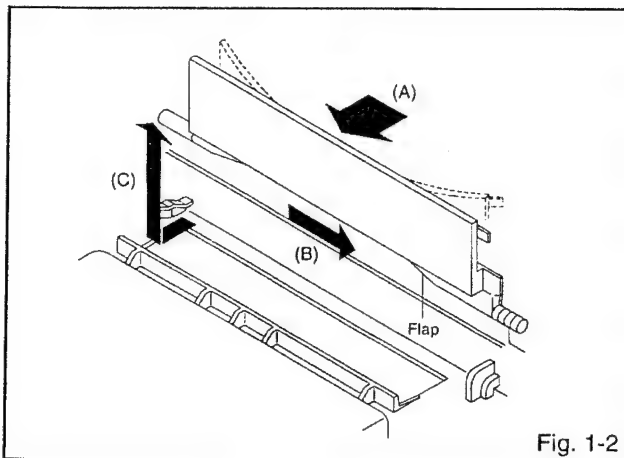
1-1: TOP CABINET, FRONT CABINET AND OPERATION PCB (Refer to Fig. 1-1)

1. Remove the 4 screws ①.
2. Remove the Top Cabinet in the direction of arrow (A).
3. Disconnect the following connector: (CP651).
4. Unlock the 7 supports ②.
5. Remove the Front Cabinet in the direction of arrow (B).
6. Remove the 5 screws ③ and remove the Operation PCB.



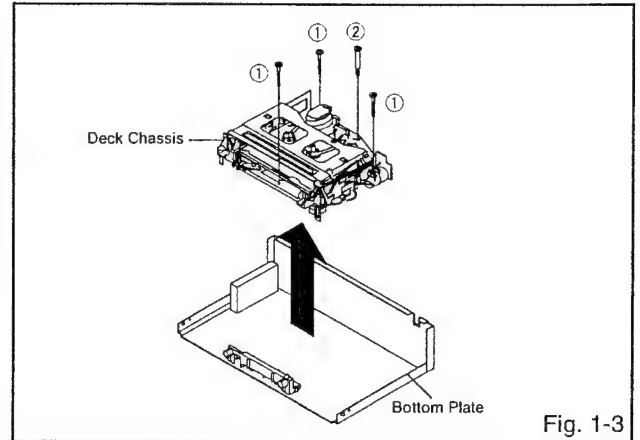
1-2: FLAP (Refer to Fig. 1-2)

1. Open Flap to 90° and flex in direction of arrow (A), at the same time slide in direction of arrow (B).
2. Then lift in direction of arrow (C).



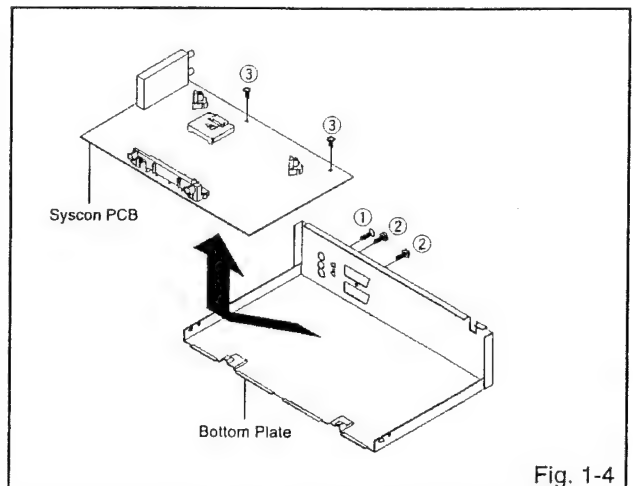
1-3: DECK CHASSIS (Refer to Fig. 1-3)

1. Remove the 3 screws ①.
2. Remove the screw ②.
3. Disconnect the following connectors: (CP1001, CP1002, CP1003, CP4001, CP4002 and CP4003).
4. Remove the Deck Chassis in the direction of arrow.



1-4: SYSCON PCB (Refer to Fig. 1-4)

1. Remove the screw ①.
2. Remove the 2 screws ②.
3. Remove the 2 screws ③.
4. Remove the Syscon PCB in the direction of arrow.



DISASSEMBLY INSTRUCTIONS

2. REMOVAL OF DECK PARTS

2-1: TOP BRACKET (Refer to Fig. 2-1)

1. Remove the 2 screws ①.
2. Slide the 2 supports ② and remove the Top Bracket.

NOTE

When you install the Top Bracket, install the screw (1) first, then install the screw (2).

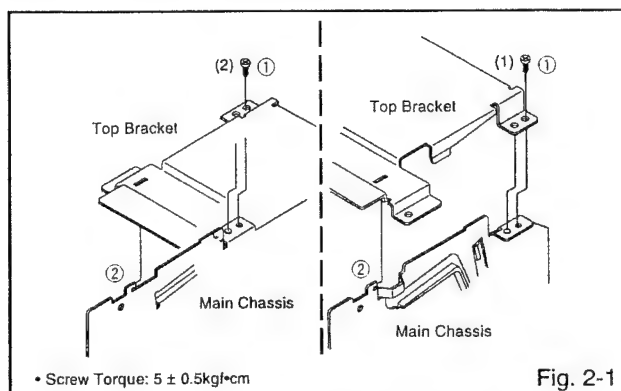


Fig. 2-1

2-2: DECK COVER/FLAP LEVER/TAPE GUIDE R (Refer to Fig. 2-2)

1. Move the Cassette Holder Ass'y to the back side.
2. Unlock the support ① and remove the Deck Cover.
3. Remove the Polyslider Washer ②.
4. Remove the Flap Lever.
5. Unlock the 3 supports ③ and remove the Tape Guide R.

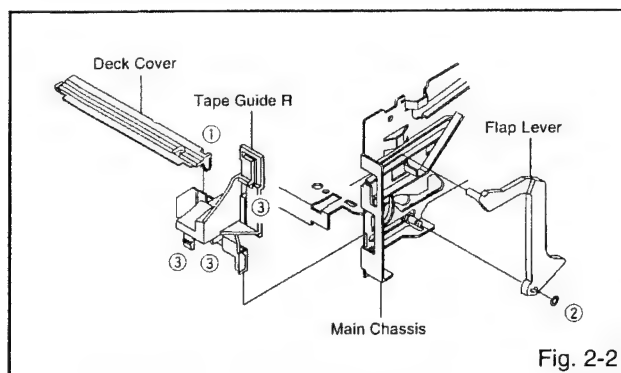


Fig. 2-2

2-3: TAPE GUIDE L (Refer to Fig. 2-3-A)

1. Move the Cassette Holder Ass'y to the back side.
2. Unlock the 2 supports ① and remove the Tape Guide L.
3. Remove the REC Lever. (Recorder only)

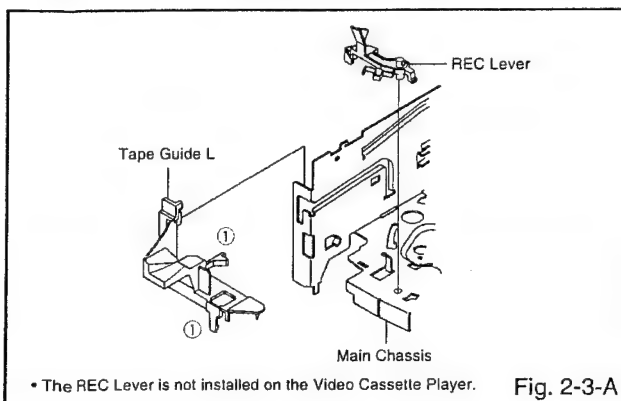


Fig. 2-3-A

NOTE

When you install the Tape Guide L, install as shown in the circle of Fig. 2-3-B. (Refer to Fig. 2-3-B)

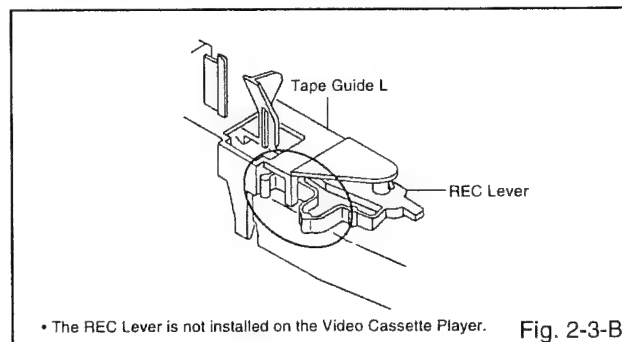


Fig. 2-3-B

2-4: CASSETTE HOLDER ASS'Y (Refer to Fig. 2-4)

1. Move the Cassette Holder Ass'y to the front side.
2. Push the Locker R to remove the Cassette Side R.
3. Remove the Cassette Side L.

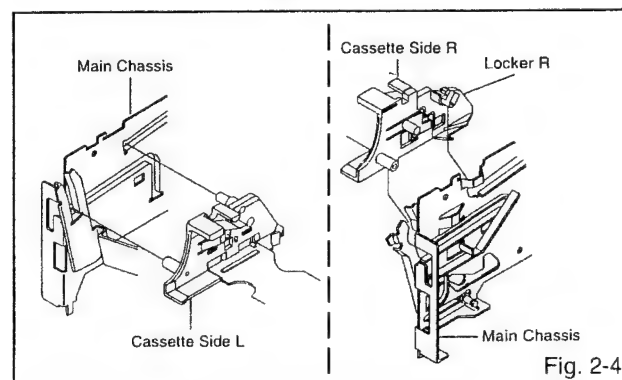


Fig. 2-4

2-5: CASSETTE SIDE L/R (Refer to Fig. 2-5)

1. Unlock the 4 supports ① and then remove the Cassette Side L/R.

NOTE

When you install the Cassette Side R, be sure to move the Locker R after installing.

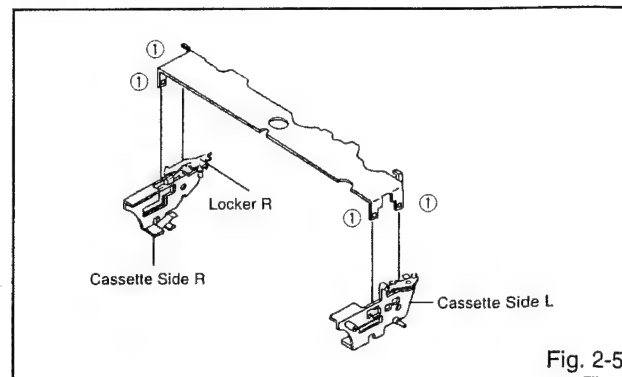


Fig. 2-5

DISASSEMBLY INSTRUCTIONS

2-6: LINK ASS'Y (Refer to Fig. 2-6)

1. Set the Link Ass'y to the Eject position.
2. Remove the (A) side of the Link Ass'y first, then remove the (B) side.

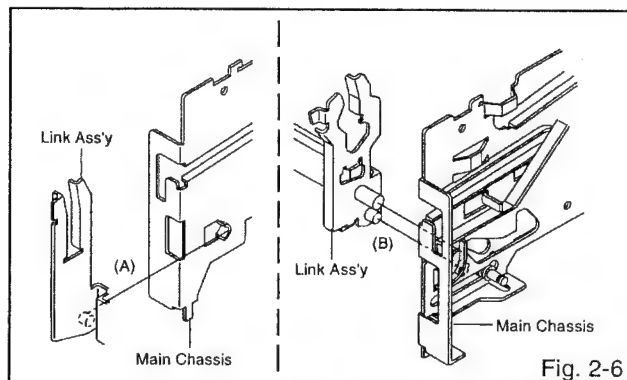


Fig. 2-6

2-7: LOADING MOTOR ASS'Y (Refer to Fig. 2-7)

1. Remove the Link Lever.
2. Remove the Dumper Spring.
3. Remove the 2 screws ①.
4. Unlock the support ② and remove the Loading Motor Ass'y.
5. Unlock the 2 supports ③ and remove the Deck PCB (BOT).

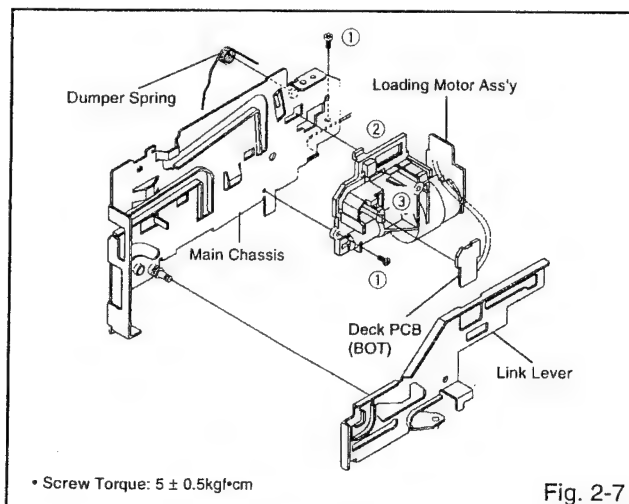


Fig. 2-7

2-8: TENSION ASS'Y (Refer to Fig. 2-8-A)

1. Move the Inclined S Ass'y to the back side.
2. Remove the Tension Spring.
3. Unlock the support ① and remove the Tension Arm Ass'y.
4. Remove the Tension Adjust.
5. Unlock the 2 supports ② and remove the Tension Band Ass'y.
6. Unlock the support ③ and remove the Tension Holder.
7. Remove the SS Brake Spring.
8. Remove the SS Arm Brake.

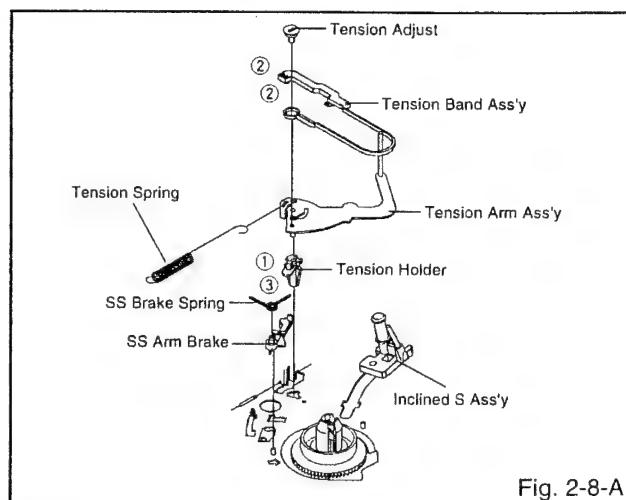


Fig. 2-8-A

NOTE

When you install the Tension Adjust, install as shown in Fig. 2-8-B. (Refer to Fig. 2-8-B)

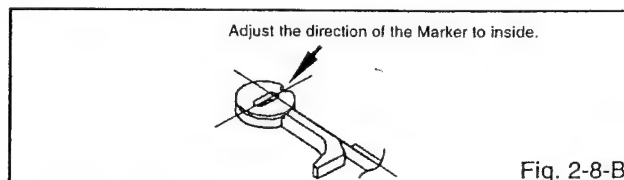


Fig. 2-8-B

2-9: T BRAKE ASS'Y (Refer to Fig. 2-9)

1. Remove the T Brake Spring.
2. Remove the T Brake Ass'y.

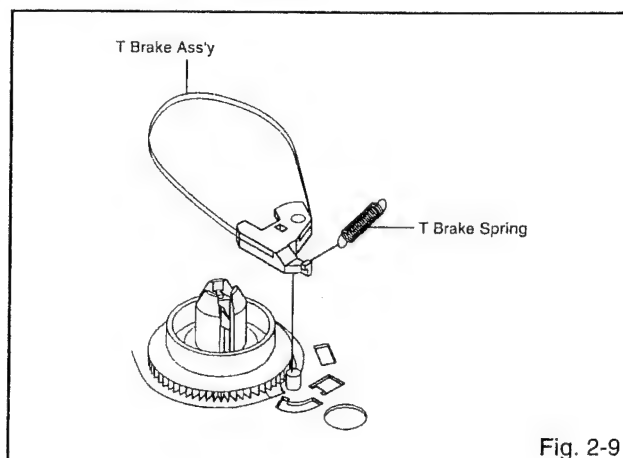


Fig. 2-9

DISASSEMBLY INSTRUCTIONS

2-10: S REEL/T REEL (Refer to Fig. 2-10)

1. Remove the S Reel and T Reel.
2. Remove the 2 Polyslider Washers ①.

NOTE

1. Take care not to damage the gears of the S Reel and T Reel.
2. The Polyslider Washer may be remained on the back of the reel.
3. Take care not to damage the shaft.
4. Do not touch the section "A" of S Reel and T Reel. (Use gloves.) (Refer to Fig. 2-10) Do not adhere the stains on it.
5. When you install the reel, clean the shaft and oil it (FL OIL #6115). (If you do not oil, noise may be heard in FF/REW mode.)
6. After installing the reel, adjust the height of the reel. (Refer to MECHANICAL ADJUSTMENT)

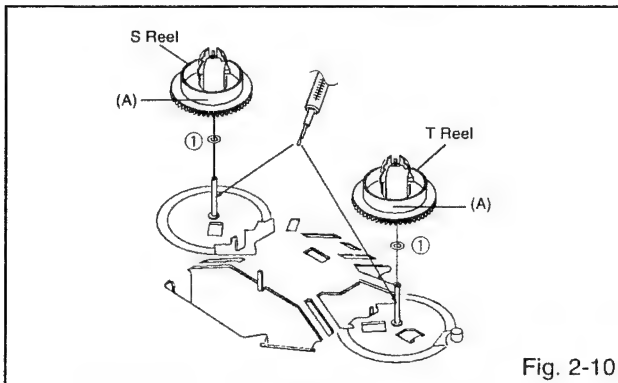


Fig. 2-10

2-11: PINCH ROLLER BLOCK/P5-3 ARM ASS'Y (Refer to Fig. 2-11-A)

1. Remove the P5 Spring.
2. Remove the screw ①.
3. Unlock the 2 supports ② and remove the Cassette Opener.
4. Remove the Pinch Roller Block, Pinch Roller Arm Spring, Pinch Roller Lever Ass'y and P5-3 Arm Ass'y.

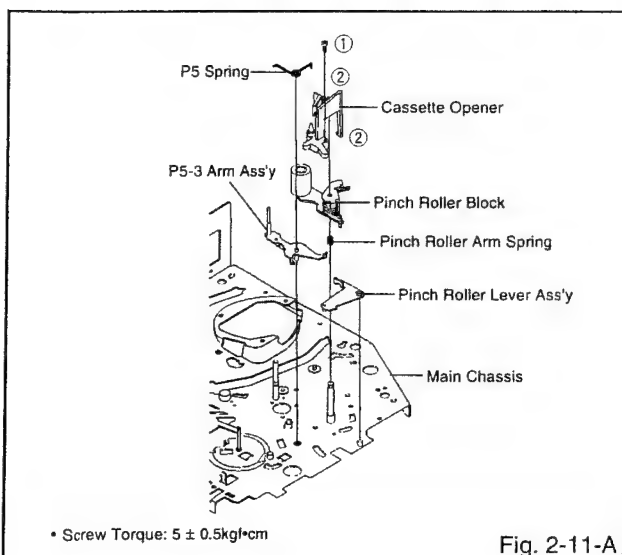


Fig. 2-11-A

NOTE

1. Do not touch the Pinch Roller. (Use gloves.)
2. When you install the Pinch Roller Block, install as shown in the circle of Fig. 2-11-B. (Refer to Fig. 2-11-B)

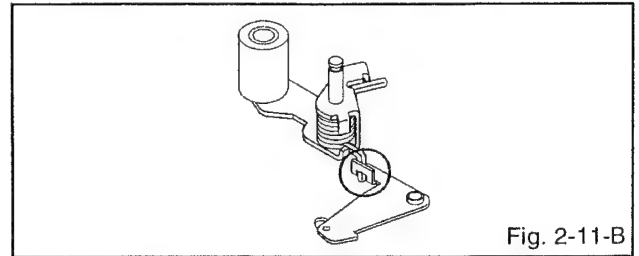


Fig. 2-11-B

2-12: A/C HEAD (Refer to Fig. 2-12-A)

1. Remove the screw ①.
2. Remove the A/C Head Base.
3. Remove the 3 screws ②.
4. Remove the A/C Head and A/C Head Spring.

NOTE

1. Do not touch the A/C Head. (Use gloves.)
2. When you install the A/C Head Spring, install as shown in Fig. 2-12-B. (Refer to Fig. 2-12-B)
3. When you install the A/C Head, tighten the screw (1) first, then tighten the screw (2), finally tighten the screw (3).

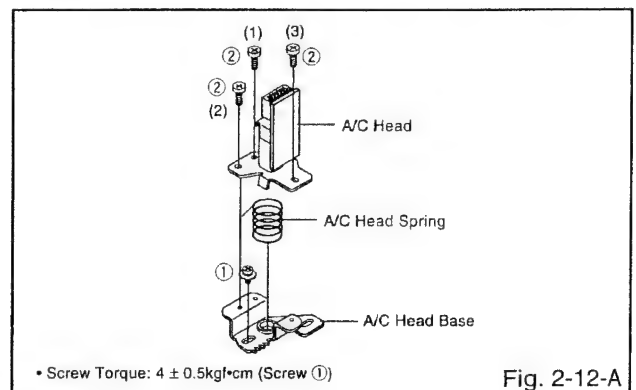


Fig. 2-12-A

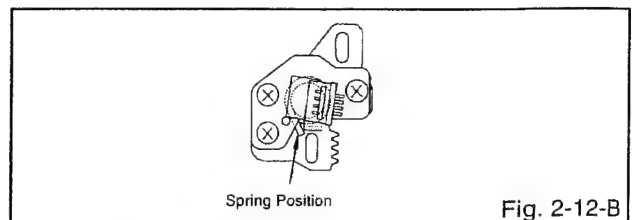


Fig. 2-12-B

2-13: FE HEAD (RECORDER ONLY) (Refer to Fig. 2-13)

1. Remove the screw ①.
2. Remove the FE Head.

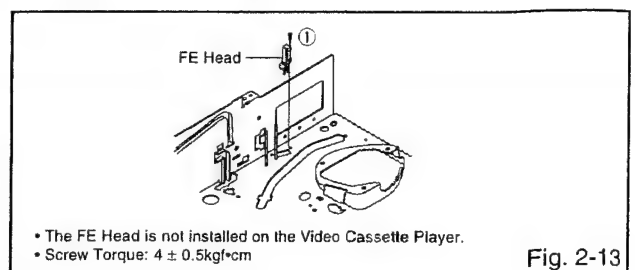


Fig. 2-13

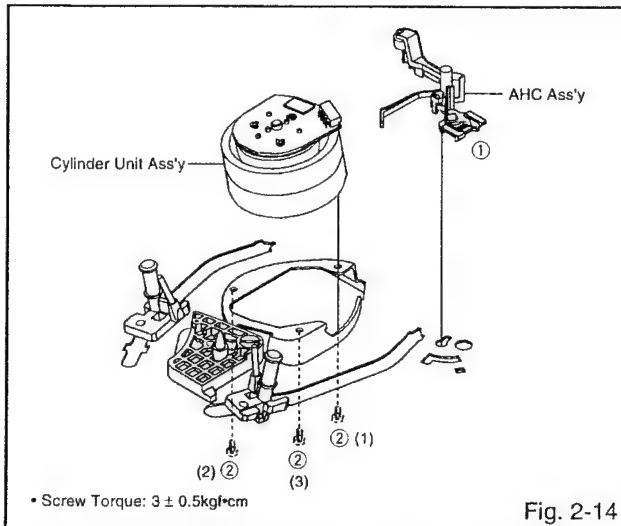
DISASSEMBLY INSTRUCTIONS

2-14: AHC ASS'Y/CYLINDER UNIT ASS'Y (Refer to Fig. 2-14)

1. Unlock the support ① and remove the AHC Ass'y.
2. Remove the 3 screws ②.
3. Remove the Cylinder Unit Ass'y.

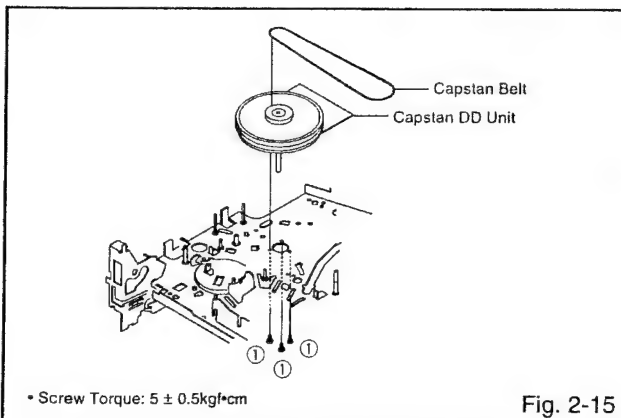
NOTE

When you install the Cylinder Unit Ass'y, tighten the screws from (1) to (3) in order while pulling the Ass'y toward the left front direction.



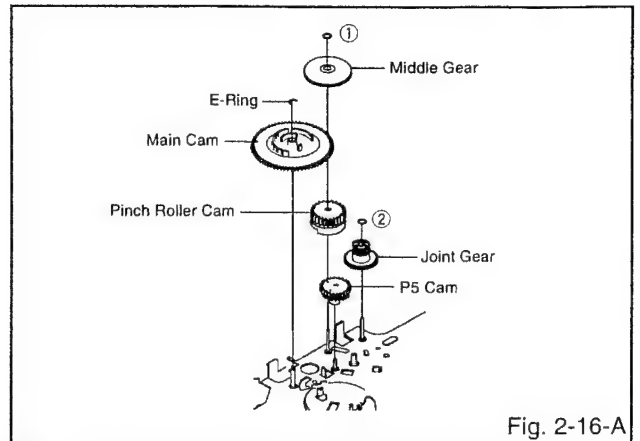
2-15: CAPSTAN DD UNIT (Refer to Fig. 2-15)

1. Remove the Capstan Belt.
2. Remove the 3 screws ①.
3. Remove the Capstan DD Unit.



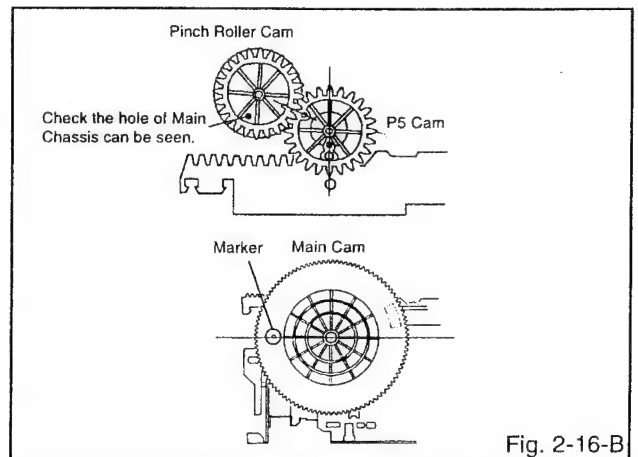
2-16: MIDDLE GEAR/MAIN CAM (Refer to Fig. 2-16-A)

1. Remove the Polyslider Washer ①, then remove the Middle Gear.
2. Remove the E-Ring, then remove the Main Cam, P5 Cam and Pinch Roller Cam.
3. Remove the Polyslider Washer ②, then remove the Joint Gear.



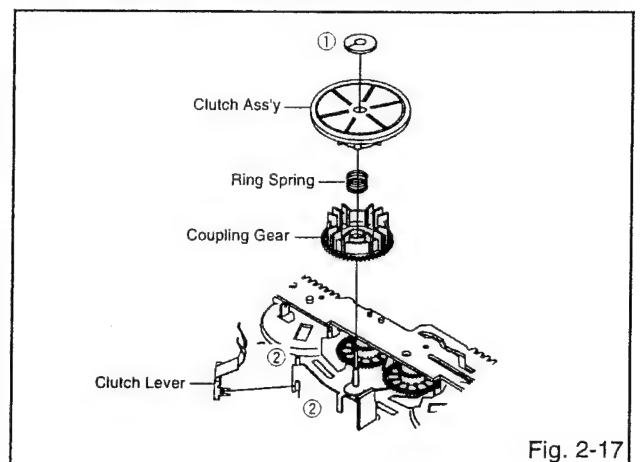
NOTE

When you install the Pinch Roller Cam, P5 Cam and Main Cam, align each marker. (Refer to Fig. 2-16-B)



2-17: CLUTCH ASS'Y (Refer to Fig. 2-17)

1. Remove the Polyslider Washer ①.
2. Remove the Clutch Ass'y, Ring Spring and Coupling Gear.
3. Unlock the 2 supports ② and remove the Clutch Lever.



DISASSEMBLY INSTRUCTIONS

2-18: LOADING GEAR S/T ASS'Y (Refer to Fig. 2-18-A)

1. Remove the E-Ring ① and remove the Main Loading Gear.
2. Remove the Capstan Brake Spring.
3. Slide the Main Rod and remove the Capstan Brake Ass'y.
4. Remove the Main Rod, Tension Lever, Clutch Actuator, Idler Arm Ass'y.
5. Remove the screw ②.
6. Remove the LED Reflector.
7. Remove the Loading Arm S Ass'y and Loading Arm T Ass'y.
8. Remove the Loading Gear S and Loading Gear T.
9. Remove the Loading Gear Spring.

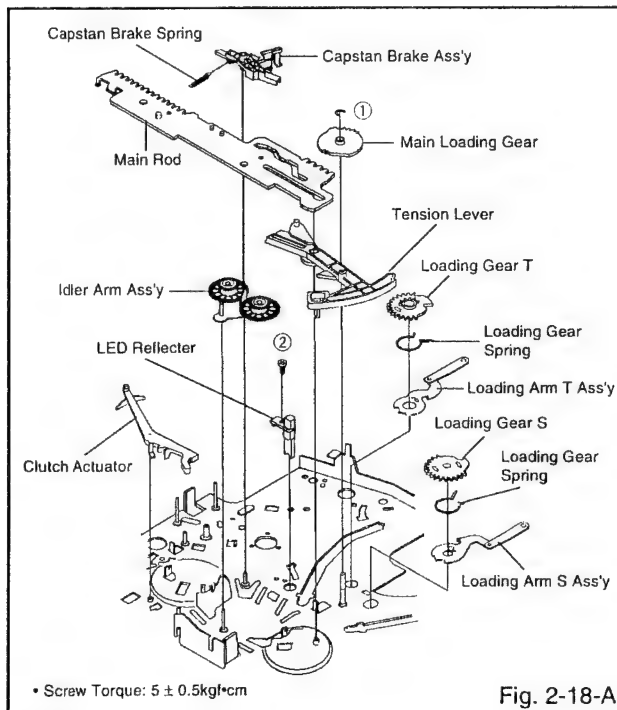


Fig. 2-18-A

NOTES

1. When you install the Loading Arm S Ass'y, Loading Arm T Ass'y and Main Loading Gear, align each marker. (Refer to Fig. 2-18-B)

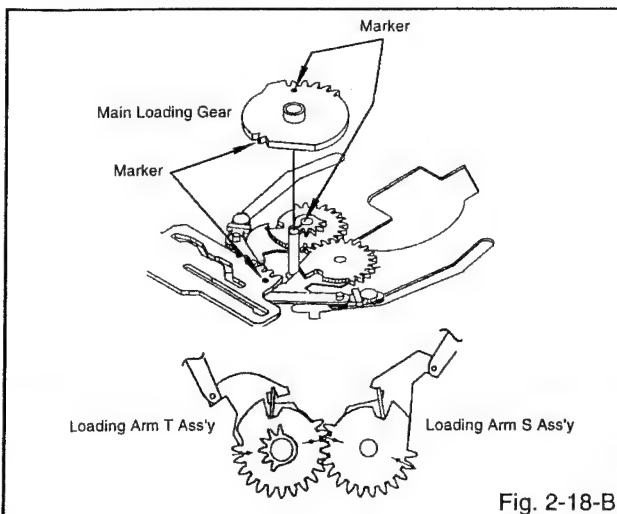


Fig. 2-18-B

2. When you install the Clutch Actuator, install as shown in the circle of Fig. 2-18-C. (Refer to Fig. 2-18-C)

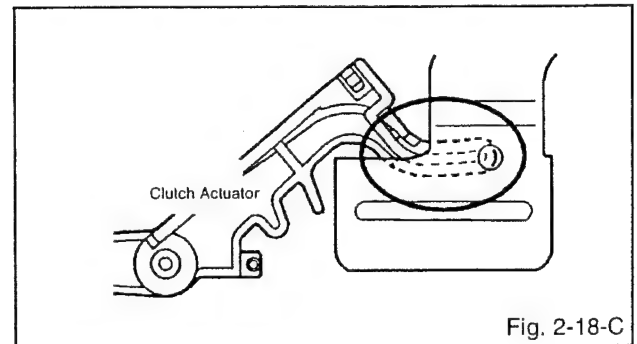


Fig. 2-18-C

2-19: INCLINED S/T ASS'Y (Refer to Fig. 2-19)

1. Unlock the support ① and remove the P4 Cover.
2. Remove the screw ②.
3. Unlock the support ③ and remove the Loading Gear Holder.
4. Remove the Inclined S.
5. Remove the Inclined T.
6. Remove the 2 screws ④, then remove the Guide Roller.

NOTE

Do not touch the roller of Guide Roller.

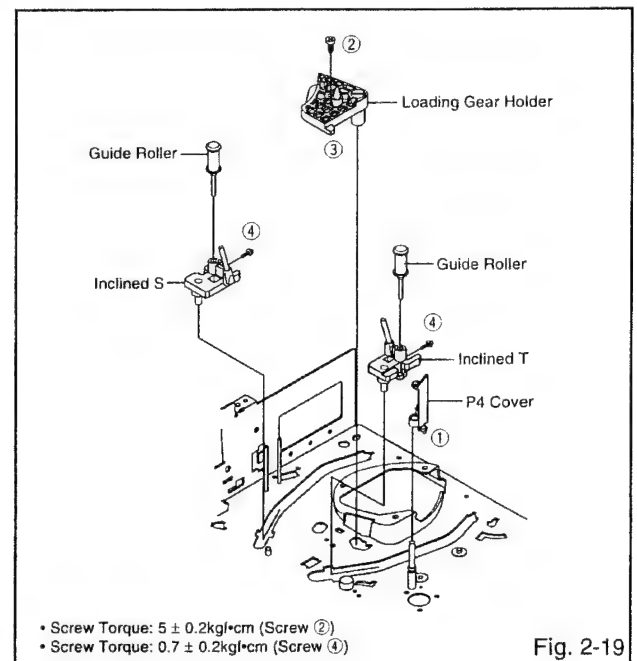


Fig. 2-19

KEY TO ABBREVIATIONS

| | | | | | |
|----------|----------------------|--------------------------------|-------------|------------------|--------------------------------|
| A | A/C | : Audio/Control | H.SW | : Head Switch | |
| | ACC | : Automatic Color Control | Hz | : Hertz | |
| | AE | : Audio Erase | I | IC | : Integrated Circuit |
| | AFC | : Automatic Frequency Control | | IF | : Intermediate Frequency |
| | AFT | : Automatic Fine Tuning | | IND | : Indicator |
| | AFT DET | : Automatic Fine Tuning Detect | | INV | : Inverter |
| | AGC | : Automatic Gain Control | K | KIL | : Killer |
| | AMP | : Amplifier | L | L | : Left |
| | ANT | : Antenna | | LED | : Light Emitting Diode |
| | A.PB | : Audio Playback | | LIMIT AMP | : Limiter Amplifier |
| | APC | : Automatic Phase Control | | LM, LDM | : Loading Motor |
| | ASS'Y | : Assembly | | LP | : Long Play |
| | AT | : All Time | | L.P.F | : Low Pass Filter |
| | AUTO | : Automatic | | LUMI. | : Luminance |
| | A/V | : Audio/Video | M | M | : Motor |
| B | BGP | : Burst Gate Pulse | | MAX | : Maximum |
| | BOT | : Beginning of Tape | | MINI | : Minimum |
| | BPF | : Bandpass Filter | | MIX | : Mixer, mixing |
| | BRAKE SOL | : Brake Solenoid | | MM | : Monostable Multivibrator |
| | BUFF | : Buffer | | MOD | : Modulator, Modulation |
| | B/W | : Black and White | | MPX | : Multiplexer, Multiplex |
| C | C | : Capacitance, Collector | | MS SW | : Mecha State Switch |
| | CASE | : Cassette | N | NC | : Non Connection |
| | CAP | : Capstan | | NR | : Noise Reduction |
| | CARR | : Carrier | O | OSC | : Oscillator |
| | CH | : Channel | | OPE | : Operation |
| | CLK | : Clock | P | PB | : Playback |
| | CLOCK (SY-SE) | : Clock (Syscon to Servo) | | PB CTL | : Playback Control |
| | COMB | : Combination, Comb Filter | | PB-C | : Playback-Chrominance |
| | CONV | : Converter | | PB-Y | : Playback-Luminance |
| | CPM | : Capstan Motor | | PCB | : Printed Circuit Board |
| | CTL | : Control | | P. CON | : Power Control |
| | CYL | : Cylinder | | PD | : Phase Detector |
| | CYL-M | : Cylinder-Motor | | PG | : Pulse Generator |
| | CYL SENS | : Cylinder-Sensor | | P-P | : Peak-to Peak |
| D | DATA (SY-CE) | : Data (Syscon to Servo) | R | R | : Right |
| | dB | : Decibel | | REC | : Recording |
| | DC | : Direct Current | | REC-C | : Recording-Chrominance |
| | DD Unit | : Direct Drive Motor Unit | | REC-Y | : Recording-Luminance |
| | DEMOD | : Demodulator | | REEL BRK | : Reel Brake |
| | DET | : Detector | | REEL S | : Reel Sensor |
| | DEV | : Deviation | | REF | : Reference |
| E | E | : Emitter | | REG | : Regulated, Regulator |
| | EF | : Emitter Follower | | REW | : Rewind |
| | EMPH | : Emphasis | | REV, RVS | : Reverse |
| | ENC | : Encoder | | RF | : Radio Frequency |
| | ENV | : Envelope | | RMC | : Remote Control |
| | EOT | : End of Tape | | RY | : Relay |
| | EQ | : Equalizer | S | S. CLK | : Serial Clock |
| | EXT | : External | | S. COM | : Sensor Common |
| F | F | : Fuse | | S. DATA | : Serial Data |
| | FBC | : Feed Back Clamp | | SEG | : Segment |
| | FE | : Full Erase | | SEL | : Select, Selector |
| | FF | : Fast Forward, Flipflop | | SENS | : Sensor |
| | FG | : Frequency Generator | | SER | : Search Mode |
| | FL SW | : Front Loading Switch | | SI | : Serial Input |
| | FM | : Frequency Modulation | | SIF | : Sound Intermediate Frequency |
| | FSC | : Frequency Sub Carrier | | SO | : Serial Output |
| | FWD | : Forward | | SOL | : Solenoid |
| G | GEN | : Generator | | SP | : Standard Play |
| | GND | : Ground | | STB | : Serial Strobe |
| H | H.P.F | : High Pass Filter | | SW | : Switch |

ERROR CODE LIST

If the error indications are appeared on the FIP, check the abnormal points by using the table below.

| Indications | Error contents |
|-------------|----------------------|
| Error : 00 | Remocon code error |
| Error : 01 | Reel mecha error |
| Error : 02 | Cylinder mecha error |
| Error : 03 | Mecha state error |
| Error : 04 | Capstan mecha error |

SERVICE MODE LIST

This unit provided with the following SERVICE MODES so you can repair, examine and adjust easily.

| Method | Operations |
|---|--|
| Press both PLAY button and CH UP button on the set for more than 2 seconds. | Initialization of the factory. NOTE: Do not use this for the normal servicing. |
| While pressing the CH UP key on the set, press the FF key on the set for more than 2 seconds. | PLAY/REC total hours are displayed on the FIP. Refer to the "PREVENTIVE CHECKS AND SERVICE INTERVALS" (CONFIRMATION OF USING HOURS). Can be checked of the INITIAL DATA of MEMORY IC. Refer to the "NOTE FOR THE REPLACING OF MEMORY IC". |
| Press the ATR button on the remote control for more than 2 seconds during PLAY. | Adjusting of the Tracking to the center position. Refer to the "MECHANICAL ADJUSTMENT" (GUIDE ROLLER) and "ELECTRICAL ADJUSTMENT" (PG SHIFTER). |
| While pressing the CH UP button on the set, press the STOP button on the set for more than 2 seconds during PLAY. | Adjust the PG SHIFTER automatically. Refer to the "ELECTRICAL ADJUSTMENT" (PG SHIFTER). |
| Make the short circuit between the test point of SERVICE and the GND. | The EOT/BOT/Reel sensor do not work at this moment. Refer to the "PREPARATION FOR SERVICING" |

KEY TO ABBREVIATIONS

| | | | |
|----------|-----------------|---|---------------------------------|
| S | SYNC | : | Synchronization |
| | SYNC SEP | : | Sync Separator, Separation |
| T | TR | : | Transistor |
| | TRAC | : | Tracking |
| | TRICK PB | : | Trick Playback |
| | TP | : | Test Point |
| U | UNREG | : | Unregulated |
| V | V | : | Volt |
| | VCO | : | Voltage Controlled Oscillator |
| | VIF | : | Video Intermediate Frequency |
| | VP | : | Vertical Pulse, Voltage Display |
| | V.PB | : | Video Playback |
| | VR | : | Variable Resistor |
| | V.REC | : | Video Recording |
| | VSF | : | Visual Search Fast Forward |
| | VSR | : | Visual Search Rewind |
| | VSS | : | Voltage Super Source |
| | V-SYNC | : | Vertical-Synchronization |
| | VT | : | Voltage Tuning |
| X | X'TAL | : | Crystal |
| Y | Y/C | : | Luminance/Chrominance |

PREVENTIVE CHECKS AND SERVICE INTERVALS

The following standard table depends on environmental conditions and usage. Unless maintenance is properly carried out, the following service intervals may be quite shortened as harmful effects may be had on other parts. Also, long term storage or misuse may cause transformation and aging of rubber parts.

| Time Parts Name | 500 hours | 1,000 hours | 1,500 hours | 2,000 hours | 3,000 hours | Notes |
|---------------------------------|--------------|----------------|----------------|----------------|----------------|---|
| Audio Control Head | ■ | ■ | ■ | ■ | ■ | Clean those parts in contact with the tape. |
| Full Erase Head (Recorder only) | ■ | ■ | ■ | ■ | ■ | |
| Capstan Belt | | | ■ | ■ | ● | Clean the rubber, and parts which the rubber touches. |
| Pinch Roller | ■ | ■ | ■ | ■ | ■ ● | |
| Capstan DD Unit | | | | | ● | |
| Loading Motor | | | | | ● | |
| Tension Band | | | | | ● | |
| Capstan Shaft | ■ | ■ | ■ | ■ | ■ | |
| Tape Running Guide Post | ■ | ■ | ■ | ■ | ■ | Replace when rolling becomes abnormal. |
| Cylinder Unit | ■ | ■ | ■ | ■ | ● | Clean the Head |

■ : Clean
● : Replace

CONFIRMATION OF USING HOURS

PLAY/REC total hours can be checked on the FIP.
Total hours are displayed in 16 system of notation.

1. Turn on the POWER.
2. While pressing the CH UP button on the set, press the FF button on the set for more than 2 seconds.
3. Adjust the ADDRESS to "FD" by FF or REW button and read the DATA.
(This DATA becomes the thousands digit and hundreds digit value of the following formula.)
4. Adjust the ADDRESS to "FE" by FF or REW button and read the DATA.
(This DATA becomes the tens digit and ones digit value of the following formula.)
5. After the confirmation of using hours, turn off the power.

17:Ed:04

ADDRESS
DATA

$(16 \times 16 \times 16 \times \text{thousands digit value}) + (16 \times 16 \times \text{hundreds digit value}) + (16 \times \text{tens digit value}) + (\text{ones digit value})$

PREVENTIVE CHECKS AND SERVICE INTERVALS

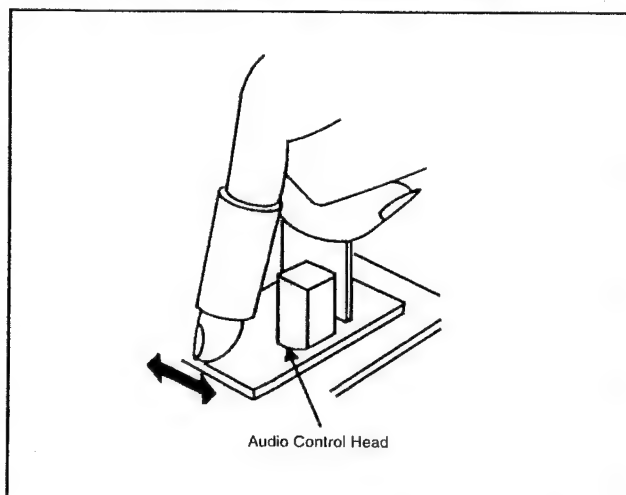
CLEANING

NOTE

After cleaning the heads with isopropyl alcohol, do not run a tape until the heads dry completely. If the heads are not completely dry and alcohol gets on the tape, damage may occur.

1. AUDIO CONTROL HEAD

Wrap a piece of chamois around your finger. Dip it in isopropyl alcohol and clean the audio control head by wiping it horizontally. Clean the full erase head in the same manner. (Refer to the figure below.)



2. TAPE RUNNING SYSTEM

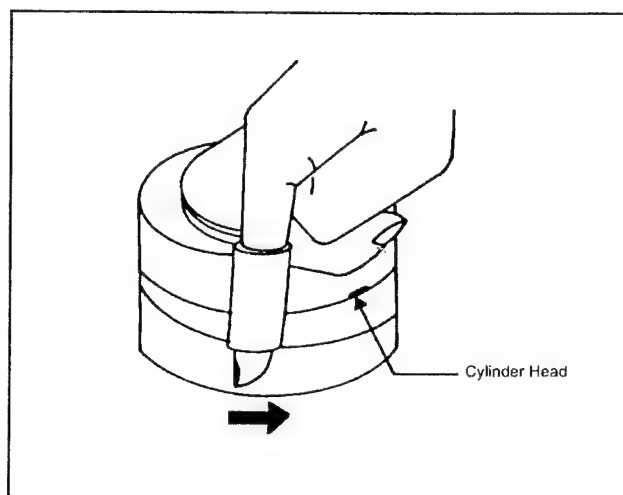
When cleaning the tape transport system, use the gauze moistened with isopropyl alcohol.

3. CYLINDER

Wrap a piece of chamois around your finger. Dip it in isopropyl alcohol. Hold it to the cylinder head softly. Turn the cylinder head counterclockwise to clean it (in the direction of the arrow). (Refer to the figure below.)

NOTE

Do not exert force against the cylinder head. Do not move the chamois upward or downward on the head. Use the chamois one by one.



NOTE FOR THE REPLACING OF MEMORY IC

If a service repair is undertaken where it has been required to change the MEMORY IC, the following steps should be taken to ensure correct data settings while making reference to TABLE 1.

| ADDRESS | DATA | ADDRESS | DATA | ADDRESS | DATA | ADDRESS | DATA | ADDRESS | DATA | ADDRESS | DATA |
|---------|------|---------|------|---------|------|---------|------|---------|------|---------|------|
| C2 | 00 | CC | 21 | D6 | 00 | E0 | 76 | EA | 00 | F4 | 41 |
| C3 | 00 | CD | 15 | D7 | 00 | E1 | 5E | EB | 5F | F5 | 00 |
| C4 | 00 | CE | 0A | D8 | F9 | E2 | 08 | EC | 09 | F6 | 00 |
| C5 | F1 | CF | 8A | D9 | 9F | E3 | F0 | ED | F0 | F7 | 00 |
| C6 | 44 | D0 | AA | DA | 82 | E4 | 01 | EE | 0A | F8 | 00 |
| C7 | 51 | D1 | EA | DB | 0A | E5 | F3 | EF | F3 | F9 | 00 |
| C8 | 00 | D2 | 06 | DC | 42 | E6 | 00 | F0 | 50 | FA | 04 |
| C9 | 51 | D3 | 02 | DD | 35 | E7 | 00 | F1 | 2F | FB | 00 |
| CA | 6C | D4 | 02 | DE | A3 | E8 | 00 | F2 | DF | FC | 90 |
| CB | 2B | D5 | 03 | DF | 56 | E9 | 00 | F3 | 41 | | |

Table 1

1. Turn on the POWER.
2. While pressing the CH UP button on the set, press the FF button on the set for more than 2 seconds. ADDRESS and DATA should appear FIG 1.

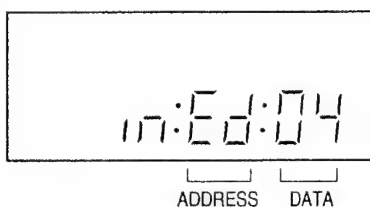



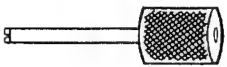


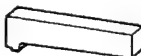
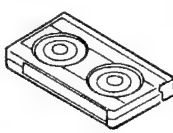

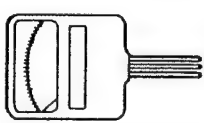


Fig. 1

3. ADDRESS is now selected and should "blink". Using the FF or REW button on the remote, step through the ADDRESS until required ADDRESS to be changed is reached.
4. Press ENTER to select DATA. When DATA is selected, it will "blink".
5. Again, step through the DATA using FF or REW button until required DATA value has been selected.
6. Pressing ENTER will take you back to ADDRESS for further selection if necessary.
7. Repeat steps 3 to 6 until all data has been checked.
8. When satisfied correct DATA has been entered, turn POWER off (return to STANDBY MODE) to finish DATA input. The unit will now have the correct DATA for the new MEMORY IC.

SERVICING FIXTURES AND TOOLS

| | | | |
|--|---|--|--|
| (For 2 head 1 speed model, 4 head model) VHS Alignment Tape JG001E (VP ₁ S-LI6 ³) JG001F (VP ₁ S-CO1 ³) JG001R (VP ₁ S-LI6 ³ H) JG001U (VP ₁ S-X6 ³)  | (For 2 head 2 speed model) VHS Alignment Tape JG001C (VP ₂ S-LI6 ³) JG001D (VP ₂ S-CO1 ³) JG001V (VP ₂ S-X6 ³)  | JG002B Adapter JG002E Dial Torque Gauge (10~90gf•cm) JG002F (60~600gf•cm)  | JG005 Post Adjustment Screwdriver Part No. SV-TG0-030-000 <small>(small)</small>  |
| JG153 X Value Adjustment Screwdriver  | JG022 Master Plane  | JG024A Reel Disk Height Adjustment Jig  | JG100A Torque Tape (VHT-063)  |
| JG154 Cable  | Tentelometer  | | |

| Part No. | Remarks |
|--------------|--|
| JG001E | Monoscope, 6KHz (For 2 head 1 speed model, 4 head model) |
| JG001F | Color Bar, 1KHz (For 2 head 1 speed model, 4 head model) |
| JG001R | Hi-Fi Audio (For Hi-Fi model) |
| JG001U | X Value Adjustment (For 2 head 1 speed model, 4 head model) |
| JG001C | Monoscope, 6KHz (For 2 head 2 speed model) |
| JG001D | Color Bar, 1KHz (For 2 head 2 speed model) |
| JG001V | X Value Adjustment (For 2 head 2 speed model) |
| JG002B | VSR Torque, Brake Torque (S Reel/T Reel Ass'y) |
| JG002E | Brake Torque (T Reel Ass'y) |
| JG002F | VSR Torque, Brake Torque (S Reel) |
| JG005 | Guide Roller Adjustment |
| JG153 | X Value Adjustment |
| JG022/JG024A | Reel Disk Height Adjustment |
| JG100A | Playback Torque, Back Tension Torque During Playback |
| JG154 | Used to connect the test point of SERVICE and GROUND |

PREPARATION FOR SERVICING

How to use the Servicing Fixture

- Short circuit between TP1001 and TP1002 with the cable JG154.
(Refer to ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE)
The EOT, BOT and Reel Sensor do not work at this moment.
At that time, the STOP/EJECT button is available to insert and eject the Cassette Tape.

MECHANICAL ADJUSTMENTS

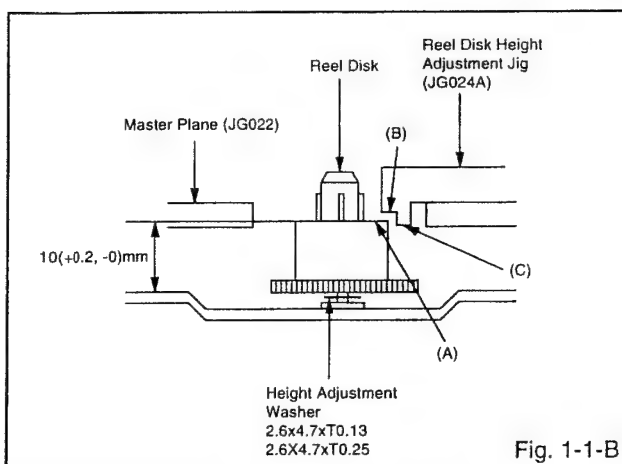
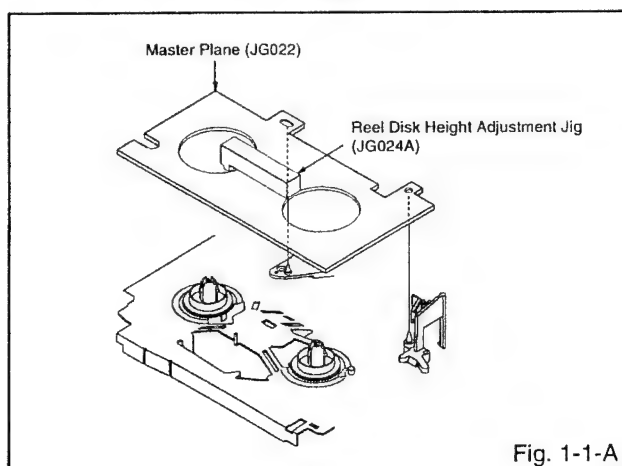
1. CONFIRMATION AND ADJUSTMENT

Read the following NOTES before starting work.

- Place an object which weighs between 450g~500g on the Cassette Tape to keep it steady when you want to make the tape run without the Cassette Holder. (Do not place an object which weighs over 500g.)
- When you activate the deck without the Cassette Holder, short circuit between TP1001 and TP1002. (Refer to **ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE**) In this condition the BOT/EOT/Reel Sensor will not function.

1-1: CONFIRMATION AND ADJUSTMENT OF REEL DISK HEIGHT

1. Turn on the power and set to the STOP mode.
2. Set the master plane (JG022) and reel disk height adjustment jig (JG024A) on the mechanism framework, taking care not to scratch the drum, as shown in Fig. 1-1-A.
3. Confirm that "A" of the reel disk is lower than "B" of the reel disk height adjustment jig (JG024A), and is higher than "C". If it is not enough height, adjust to $10(+0.2, -0)$ mm with the height adjustment washer.
4. Adjust the other reel in the same way.



1-2: CONFIRMATION AND ADJUSTMENT OF TENSION POST POSITION

1. Set to the PLAY mode.
2. Adjust the Tension Adjust until the edge of the Tension Arm is positioning within 0.5mm range from the standard line center of Main Chassis. After this adjustment, confirm that the cut position is located in "A" area as shown in Fig. 1-2-B. If it is located in "B" area, adjust again.
3. While turning the S Reel clockwise, confirm that the edge of the Tension Arm is located in the position described above.

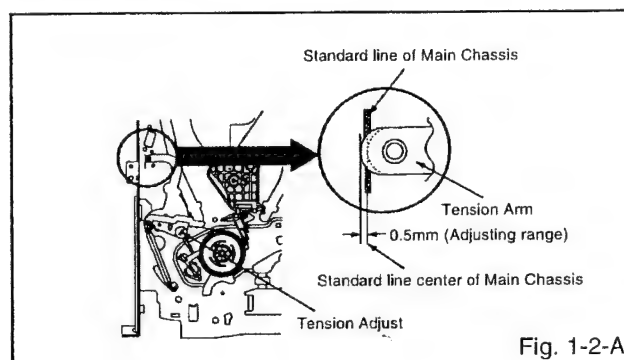


Fig. 1-2-A

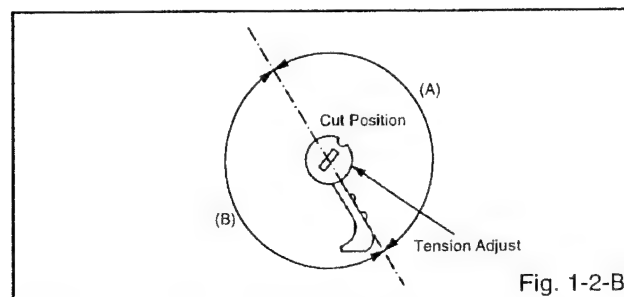


Fig. 1-2-B

1-3: CONFIRMATION OF PLAYBACK TORQUE AND BACK TENSION TORQUE DURING PLAYBACK

1. Load a video tape (E-180) recorded in standard speed mode. Set the unit to the PLAY mode.
2. Install the tentelometer as shown in Fig. 1-3. Confirm that the meter indicates $20 \pm 2gf$ in the beginning of playback.

• USING A CASSETTE TYPE TORQUE TAPE (JG100A)

1. After confirmation and adjustment of Tension Post position (Refer to item 1-2), load the cassette type torque tape (JG100A) and set to the PLAY mode.
2. Confirm that the right meter of the torque tape indicates 60~110gf•cm during playback in SP mode.
3. Confirm that the left meter of the torque tape indicates 25~40gf•cm during playback in SP mode.

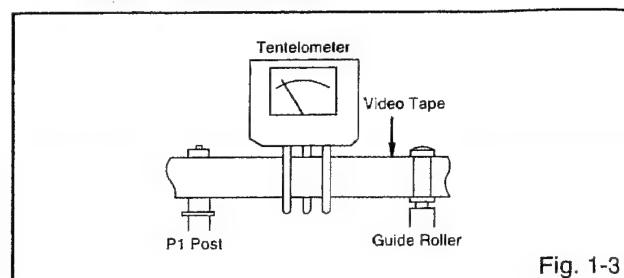


Fig. 1-3

MECHANICAL ADJUSTMENTS

1-4: CONFIRMATION OF VSR TORQUE

1. Operate within 4~5 seconds after the reel disk begins to turn.
2. Install the Torque Gauge (JG002F) and Adapter (JG002B) on the S Reel. Set to the Rewind mode. (Refer to Fig.1-4)
3. Then, confirm that it indicates 120~180gf•cm.

NOTE

Install the Torque Gauge on the reel disk firmly. Press the REW button to turn the reel disk.

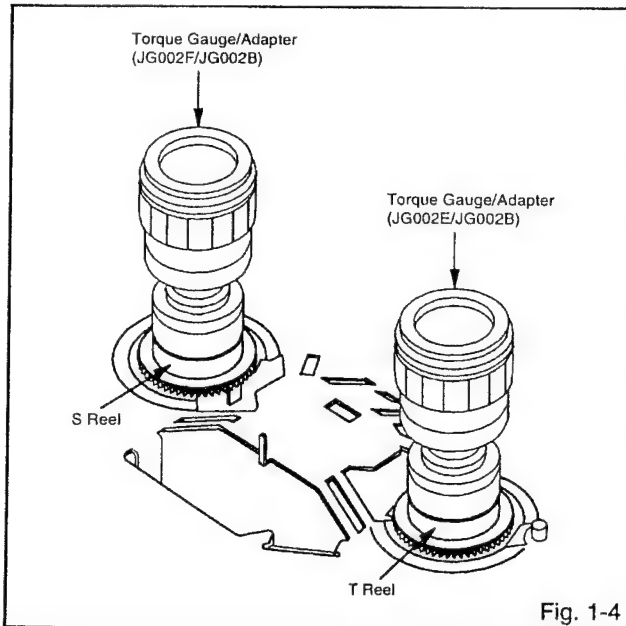
1-5: CONFIRMATION OF REEL BRAKE TORQUE

(S Reel Brake) (Refer to Fig. 1-4)

1. Set to the STOP mode.
2. Move the Idler Ass'y from the S Reel.
3. Install the Torque Gauge (JG002F) and Adapter (JG002B) on the S Reel. Turn the Torque Gauge (JG002F) clockwise.
4. Then, confirm that it indicates 60~100gf•cm.

(T Reel Brake) (Refer to Fig. 1-4)

1. Set to the STOP mode.
2. Move the Idler Ass'y from the T Reel.
3. Install the Torque Gauge (JG002E) and Adapter (JG002B) on the T reel. Turn the Torque Gauge (JG002E) counterclockwise.
4. Then, confirm that it indicates 45~70gf•cm.



NOTE

If the torque is out of the range, replace the following parts.

| Check item | Replacement Part |
|------------|-------------------------------|
| 1-4 | Idler Ass'y/Clutch Ass'y |
| 1-5 | T Brake Spring/Tension Spring |

2. CONFIRMATION AND ADJUSTMENT OF TAPE RUNNING MECHANISM

Tape Running Mechanism is adjusted precisely at the factory. Adjustment is not necessary as usual. When you replace the parts of the tape running mechanism because of long term usage or failure, the confirmation and adjustment are necessary.

2-1: GUIDE ROLLER

1. Playback the VHS Alignment Tape (JG001C or JG001E). (Refer to SERVICING FIXTURE AND TOOLS)
2. Connect CH-1 of the oscilloscope to TP4002 (Envelope) and CH-2 to TP4001 (SW Pulse).
3. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
4. Trigger with SW Pulse and observe the envelope. (Refer to Fig. 2-1-A)
5. When observing the envelope, adjust the Adjusting Driver (JG005) slightly until the envelope will be flat. Even if you press the Tracking Button, adjust so that flatness is not moved so much.
6. Adjust so that the A : B ratio is better than 3 : 2 as shown in Fig. 2-1-B, even if you press the Tracking Button to move the envelope (The envelope waveform will begin to decrease when you press the Tracking Button).
7. Adjust the PG shifter during playback.

(Refer to the ELECTRICAL ADJUSTMENTS)

NOTE

After adjustment, confirm and adjust A/C head. (Refer to item 2-2)

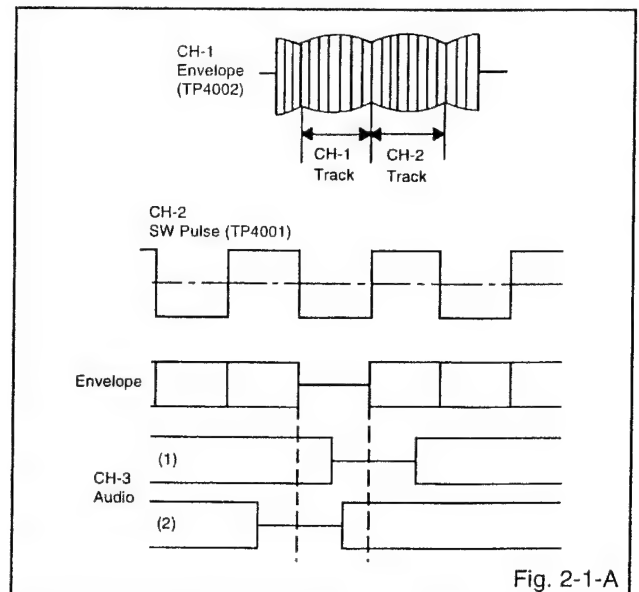


Fig. 2-1-A

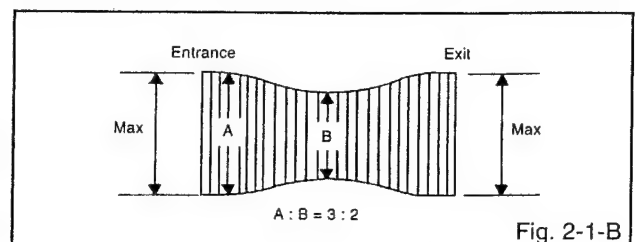


Fig. 2-1-B

MECHANICAL ADJUSTMENTS

2-2: CONFIRMATION AND ADJUSTMENT OF AUDIO/CONTROL HEAD

When the Tape Running Mechanism does not work well, adjust the following items.

1. Playback the VHS Alignment Tape (JG001C or JG001E). (Refer to **SERVICING FIXTURE AND TOOLS**)
2. Confirm that the reflected picture of stamp mark is appeared on the tape prior to P4 Post as shown in **Fig. 2-2-A**.
 - a) When the reflected picture is distorted, turn the screw ① clockwise until the distortion is disappeared.
 - b) When the reflected picture is not distorted, turn the screw ① counterclockwise until little distortion is appeared, then adjust the a).
3. Turn the screw ② to set the audio level to maximum.
4. Confirm that the bottom of the Audio/Control Head and the bottom of the tape is shown in **Fig. 2-2-C**.
 - c) When the height is not correct, turn the screw ③ to adjust the height. Then, adjust the 1~3 again.

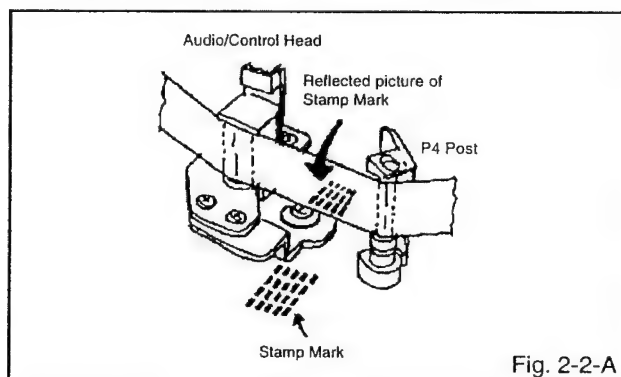


Fig. 2-2-A

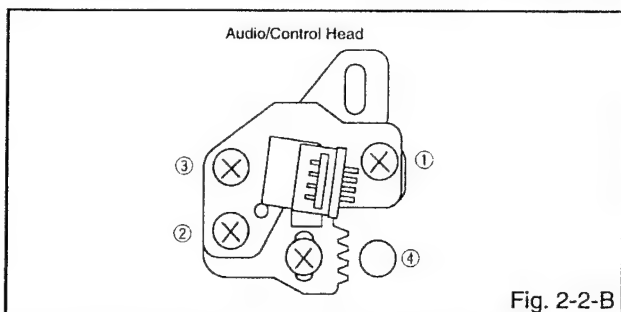


Fig. 2-2-B

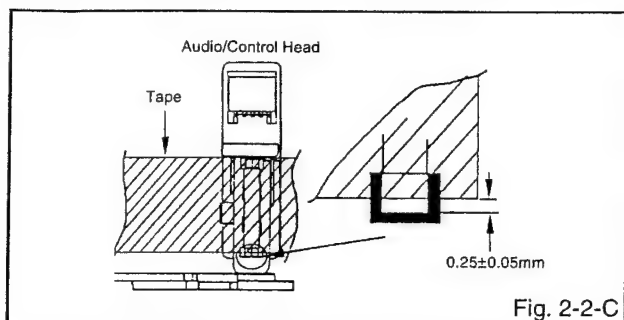


Fig. 2-2-C

2-3: TAPE RUNNING ADJUSTMENT (X VALUE ADJUSTMENT)

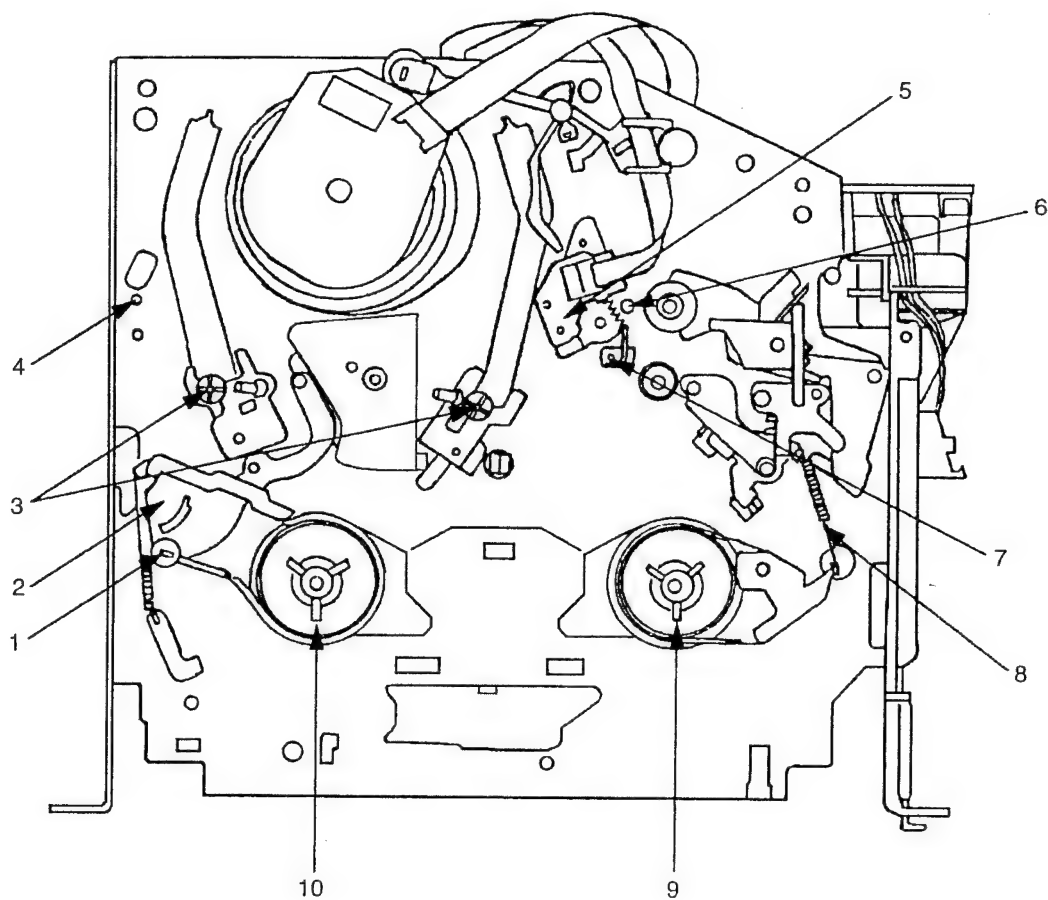
1. Confirm and adjust the height of the Reel Disk. (Refer to **item 1-1**)
2. Confirm and adjust the position of the Tension Post. (Refer to **item 1-2**)
3. Adjust the Guide Roller. (Refer to **item 2-1**)
4. Confirm and adjust the Audio/Control Head. (Refer to **item 2-2**)
5. Connect CH-1 of the oscilloscope to **TP4002**, CH-2 to **TP4001** and CH-3 to **HOT side of Audio Out Jack**.
6. Playback the VHS Alignment Tape (JG001U or JG001V). (Refer to **SERVICING FIXTURE AND TOOLS**)
7. Press and hold the Tracking-Auto button on the remote control for more than 2 seconds to set tracking to center.
8. Set the X Value adjustment driver (JG153) to the ④ of **Fig. 2-2-B**. Adjust X value so that the envelope waveform output becomes maximum. Check if the relation between Audio and Envelope waveform becomes (1) or (2) of **Fig. 2-1-A**.

2-4: CONFIRM HI-FI AUDIO (Hi-Fi model only)

1. Connect CH-1 of the oscilloscope to **TP4002**, CH-2 to **TP4001** and CH-3 to the **Hi-Fi Audio Out Jack**.
2. Playback the VHS Alignment Tape (JG001R). (Refer to **SERVICING FIXTURE AND TOOLS**)
3. Press and hold the Tracking-Auto button on the remote control for more than 2 seconds to set tracking to center.
4. Press the Tracking Up button and count number of steps which the audio output is changed from Hi-Fi (10KHz) to MONO (6KHz).
5. Press the Tracking Down button and count number of steps which the audio output is changed from Hi-Fi (10KHz) to MONO (6KHz).
6. Confirm that the difference between these counted steps number in the above items are within 2 steps. If the difference are more than 3 steps, do Tape Running Adjustment again. (Refer to **item 2-3**)

MECHANICAL ADJUSTMENTS

3. MECHANISM ADJUSTMENT PARTS LOCATION GUIDE



- | | |
|-----------------------|-----------------------------------|
| 1. Tension Adjust | 6. X value adjustment driver hole |
| 2. Tension Arm | 7. P4 Post |
| 3. Guide Roller | 8. T Brake Spring |
| 4. P1 Post | 9. T Reel |
| 5. Audio/Control Head | 10. S Reel |

ELECTRICAL ADJUSTMENTS

Read and perform these adjustments when repairing the circuits or replacing electrical parts or PCB assemblies.

1. BASIC ADJUSTMENT

CAUTION

When replacing IC's or transistors, use only specified silicon grease (YG6260M).
(To prevent the damage to IC's and transistors.)

1-1: PG SHIFTER

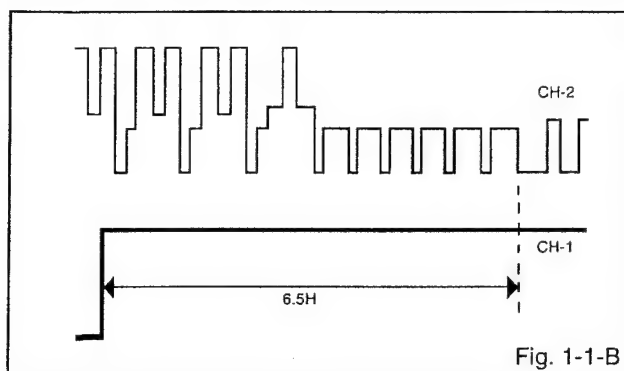
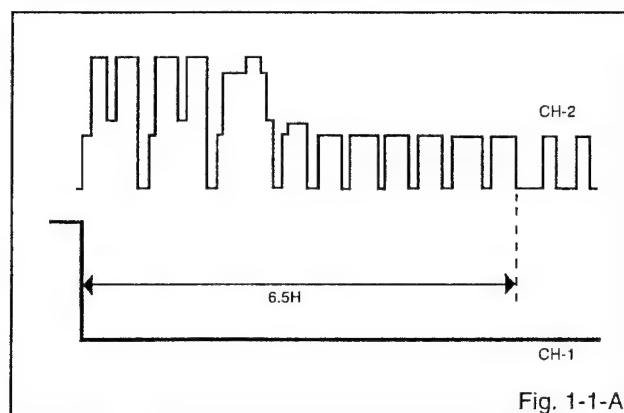
CONDITIONS

MODE-PLAYBACK

Input Signal-Alignment Tape (JG001E)

INSTRUCTIONS

1. Connect CH-1 on the oscilloscope to **TP4001** and CH-2 to **pin 19 of J4501**.
2. Playback the alignment tape. (JG001E)
3. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
4. Press both CH UP button and STOP button on the set for more than 2 seconds. If the indicator ATR disappears, the adjustment is finished. (Refer to Fig. 1-1-A, B)



1-2: SEPARATION

CONDITIONS

MODE-STOP

AUDIO OUTPUT SW: STEREO POSITION

Input Signal-RF Signal

INSTRUCTIONS

1. Receive the audio signal (L ch: No Signal, R ch: 1KHz).
2. Connect the AC voltmeter to **AUDIO OUT (L ch)**.
3. Press both CH UP button and STOP button on the set for more than 3 seconds.

The fluorescent display on the set displays as below.



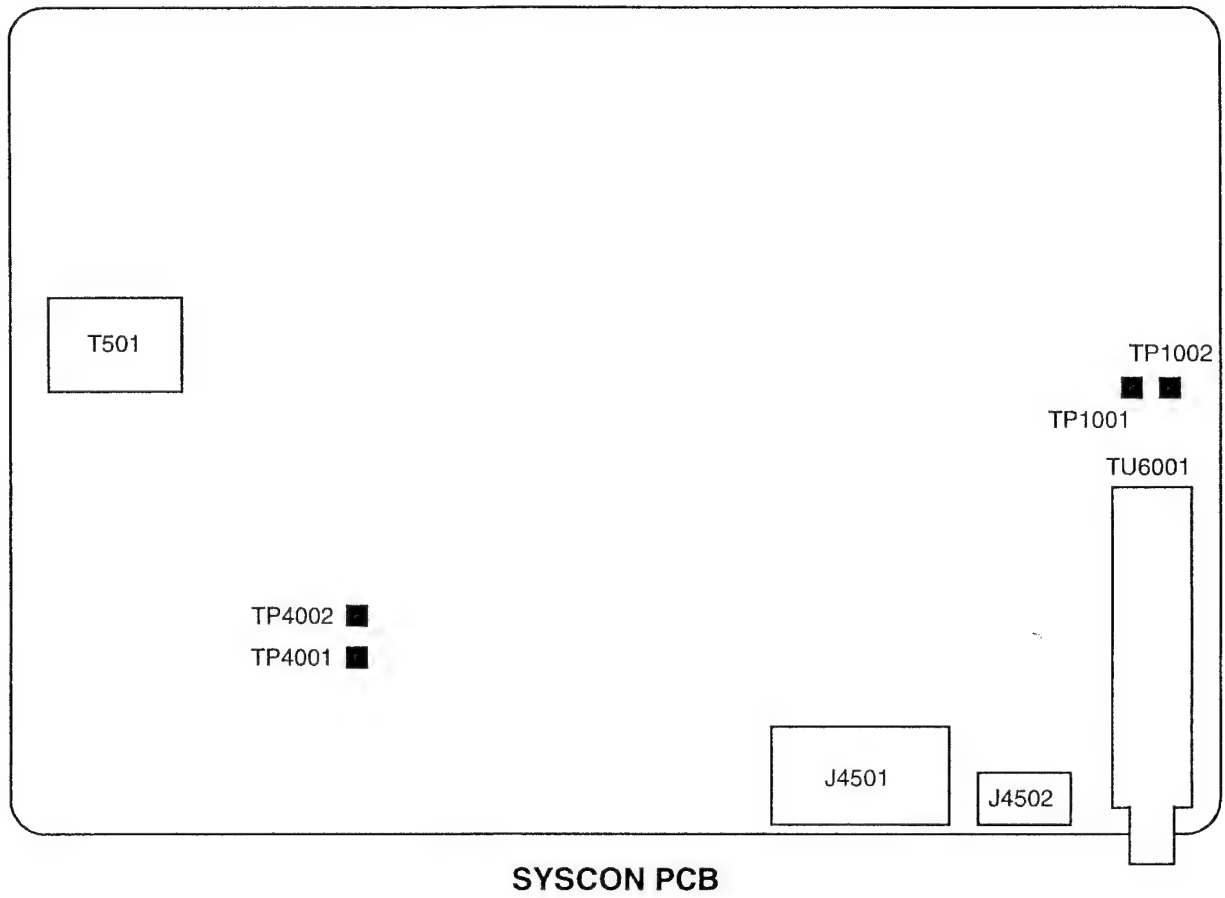
4. Press the F.FWD or REW button on the remote control.
- The fluorescent display on the set displays as below.



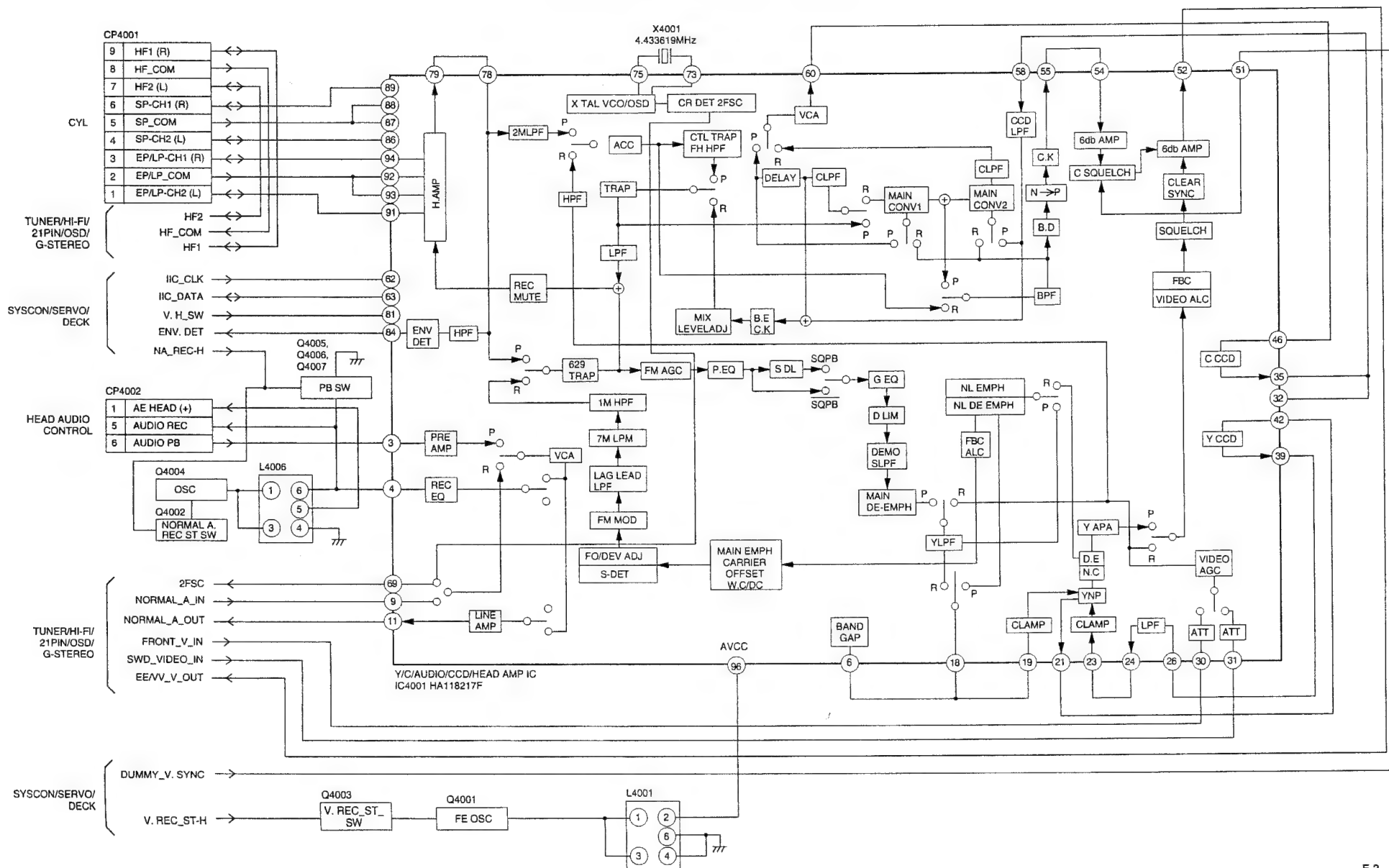
5. Adjust the F.FWD and REW button on the remote control until output signal is minimum. (more than 25dB)
6. Press both CH UP button and STOP button of the set together to complete the adjustment.
7. Receive the audio signal (L ch: 1KHz, R ch: No Signal).
8. Connect the AC voltmeter to **AUDIO OUT (R ch)**.
9. Repeat steps 3 ~ 6.

ELECTRICAL ADJUSTMENTS

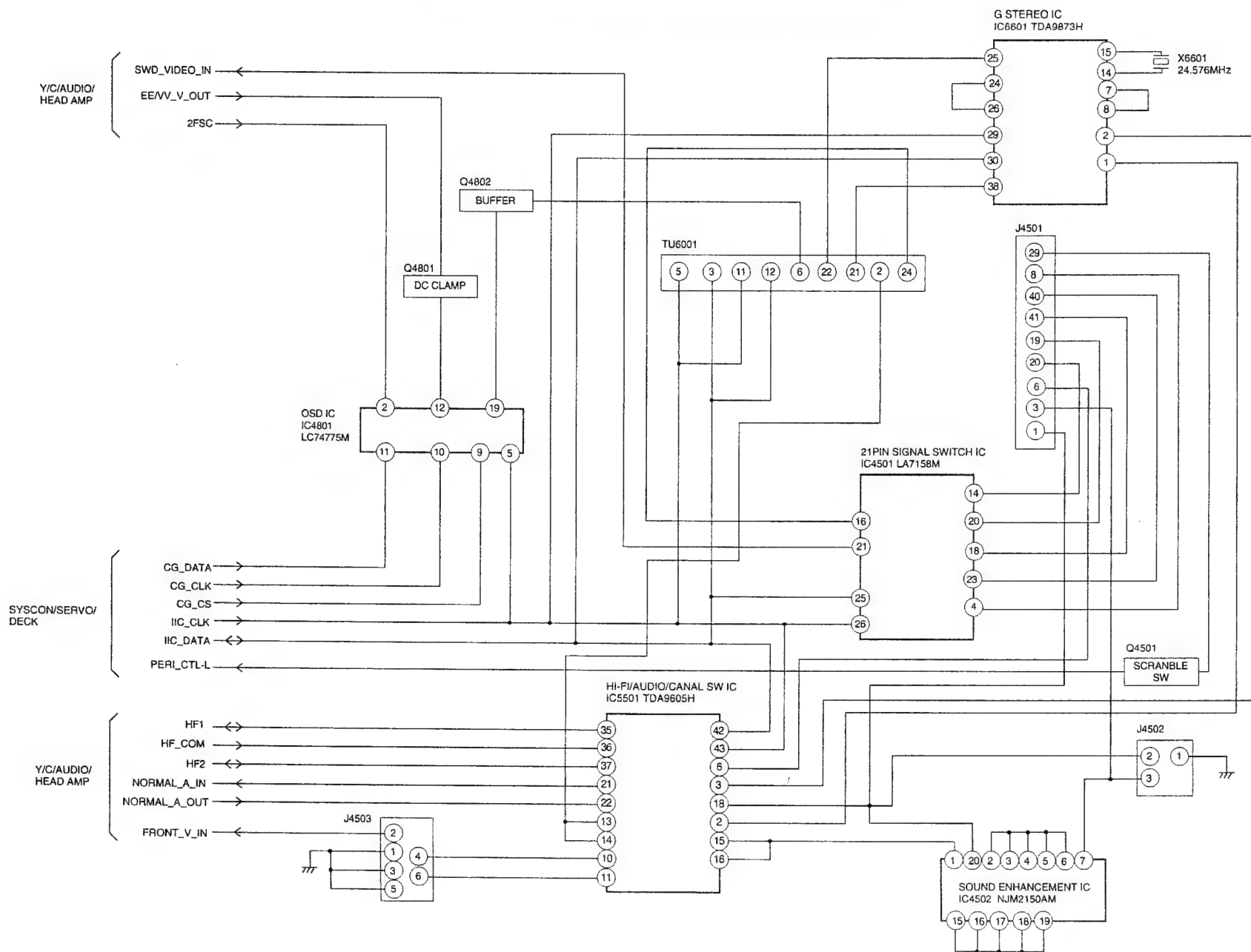
2. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE



Y/C/AUDIO/HEAD AMP BLOCK DIAGRAM

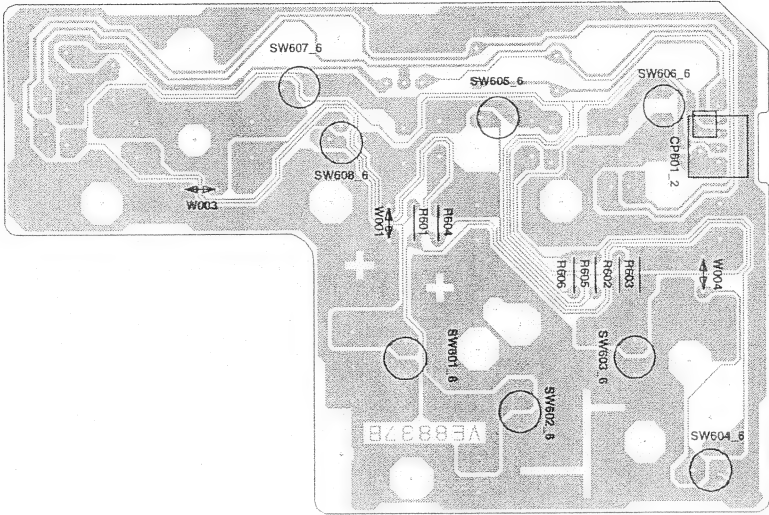


TUNER/HI-FI/21PIN/OSD/G-STEREO BLOCK DIAGRAM

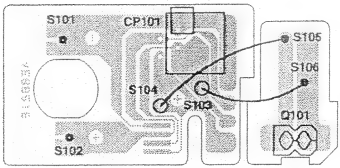


PRINTED CIRCUIT BOARDS

OPERATION
SOLDER SIDE



DECK
SOLDER SIDE



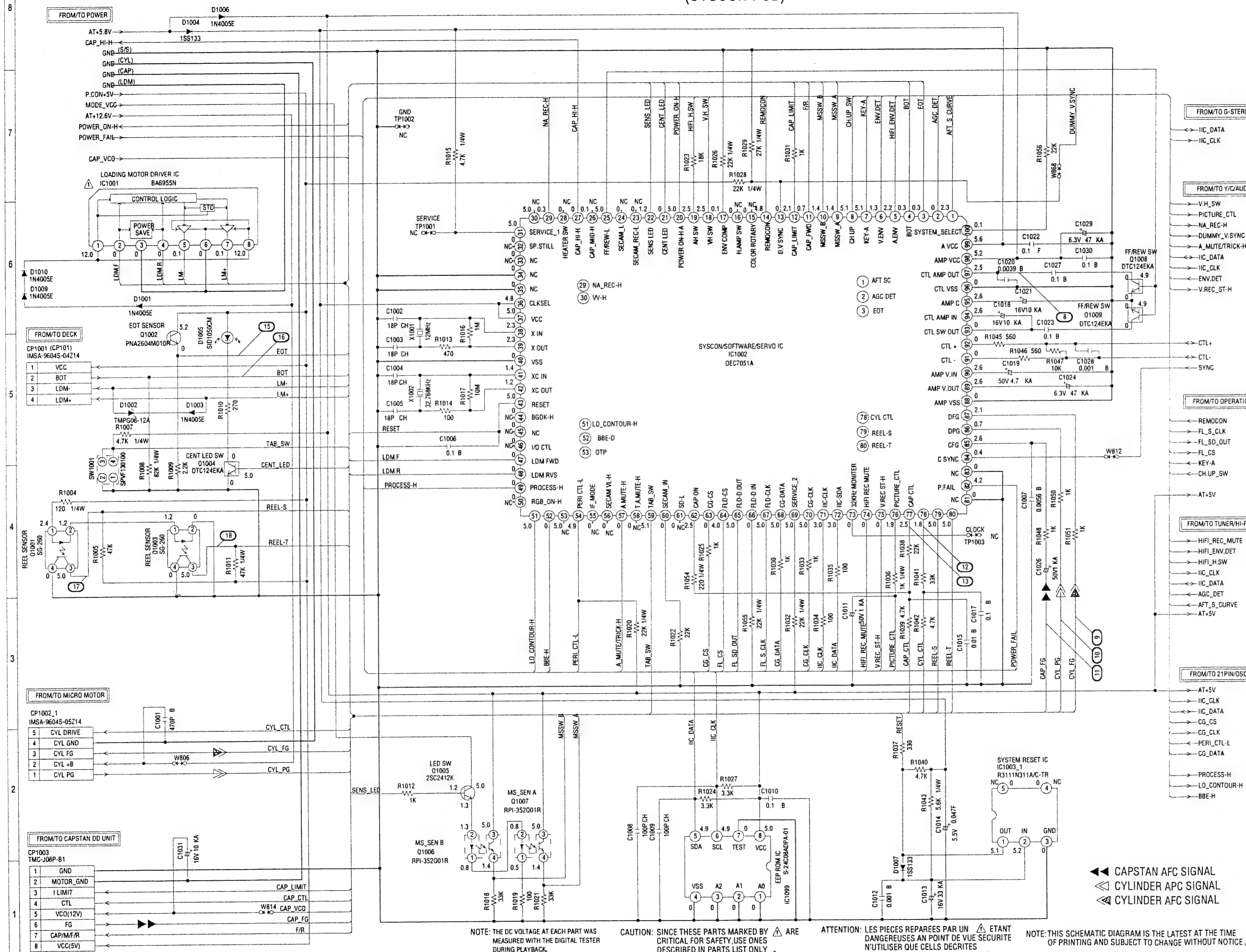
(SYSCON PCB)



NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE

SYSTEM CONTROL/SERVO SCHEMATIC DIAGRAM (SYSCON PCB)



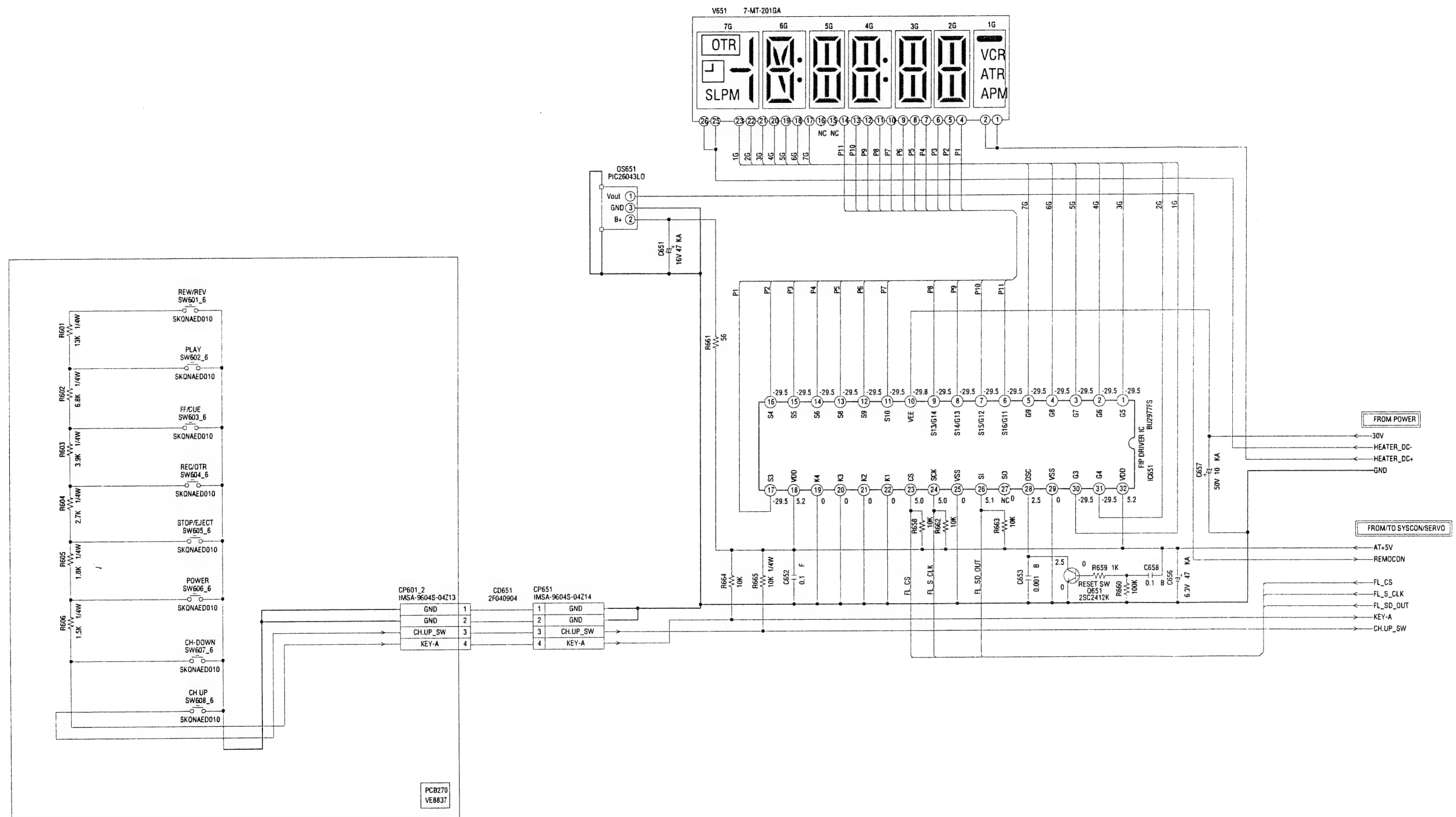
CAUTION: DIGITAL TRANSISTOR



POWER SCHEMATIC DIAGRAM
(SYSCON PCB)

PCB010
VMX179

OPERATION SCHEMATIC DIAGRAM (SYSCON PCB)

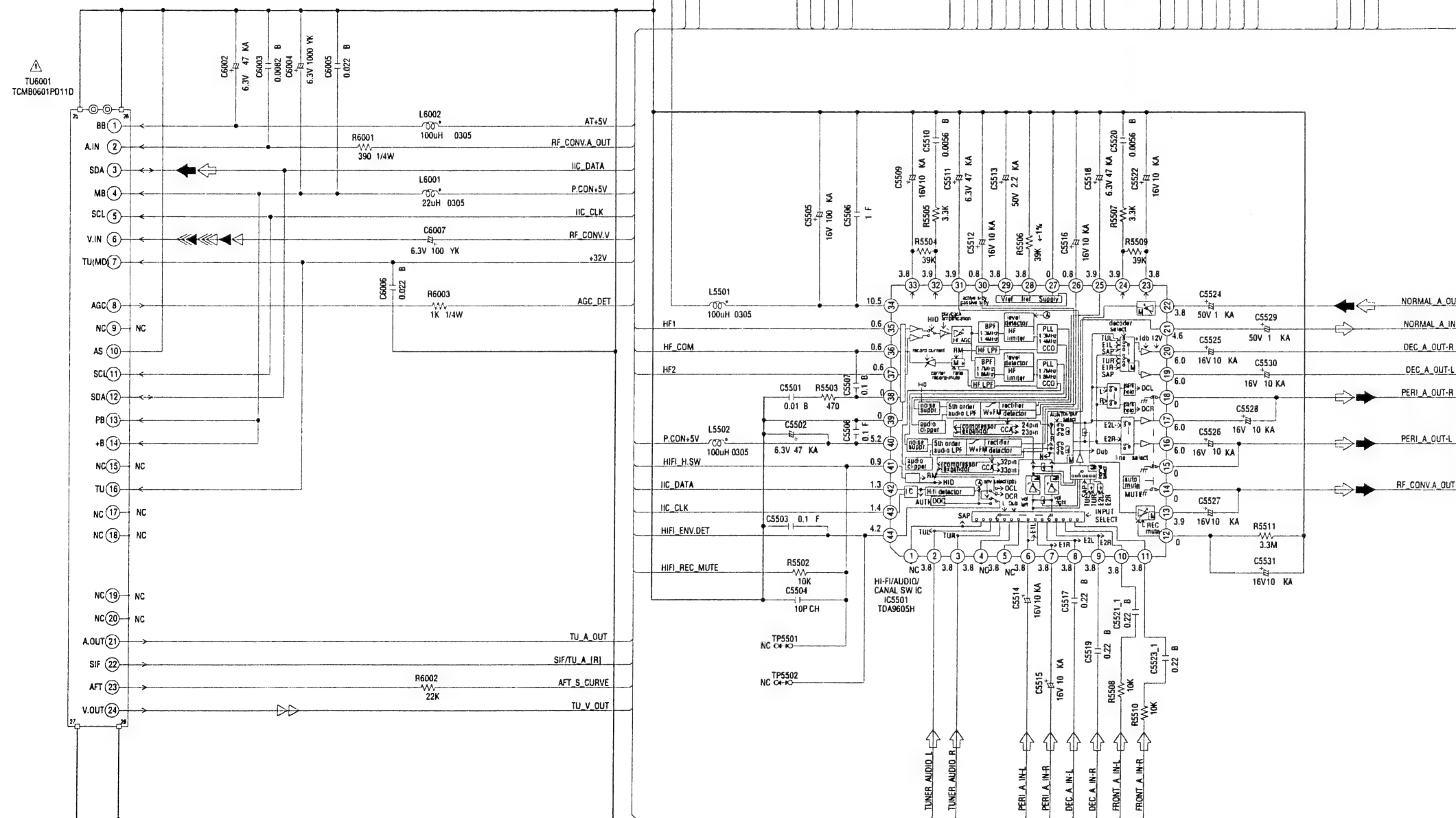


NOTE: THE DC VOLTAGE AT EACH PART WAS
MEASURED WITH THE DIGITAL TESTER
DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME
OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

PCB010
VMX179

TUNER/HI-FI SCHEMATIC DIAGRAM (SYSCON PCB)



NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

CAUTION: SINCE THESE PARTS MARKED BY ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

ATTENTION: LES PIÈCES RÉPARÉES PAR UN ÉTANT DANGEREUSES À UN POINT DE VUE SÉCURITÉ, N'UTILISER QUE CELLES DÉCRITES DANS LA NOMENCLATURE DES PIÈCES.

PCB010
VMX179

21PIN/OSD SCHEMATIC DIAGRAM (SYSCON PCB)

- ▷ TUNER VIDEO SIGNAL
- ▷ RECORD LUMINANCE SIGNAL
- ▷ RECORD COLOR SIGNAL
- ▷ PLAYBACK LUMINANCE SIGNAL
- ▷ PLAYBACK COLOR SIGNAL
- ▷ AUDIO SIGNAL(REC)
- ▷ AUDIO SIGNAL(PB)

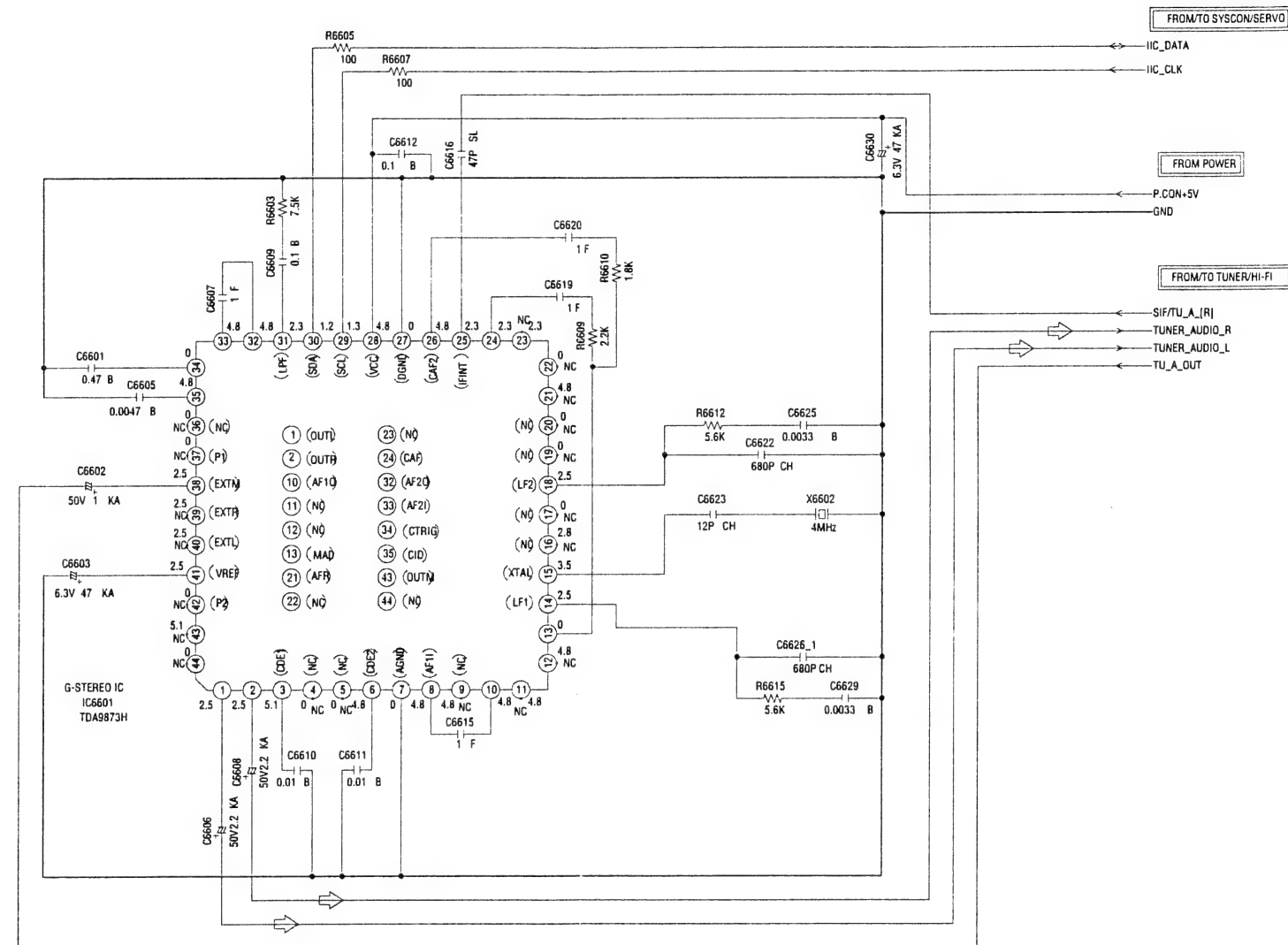
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

CAUTION: DIGITAL TRANSISTOR

PCB010
VMX179

G-STEREO SCHEMATIC DIAGRAM (SYSCON PCB)



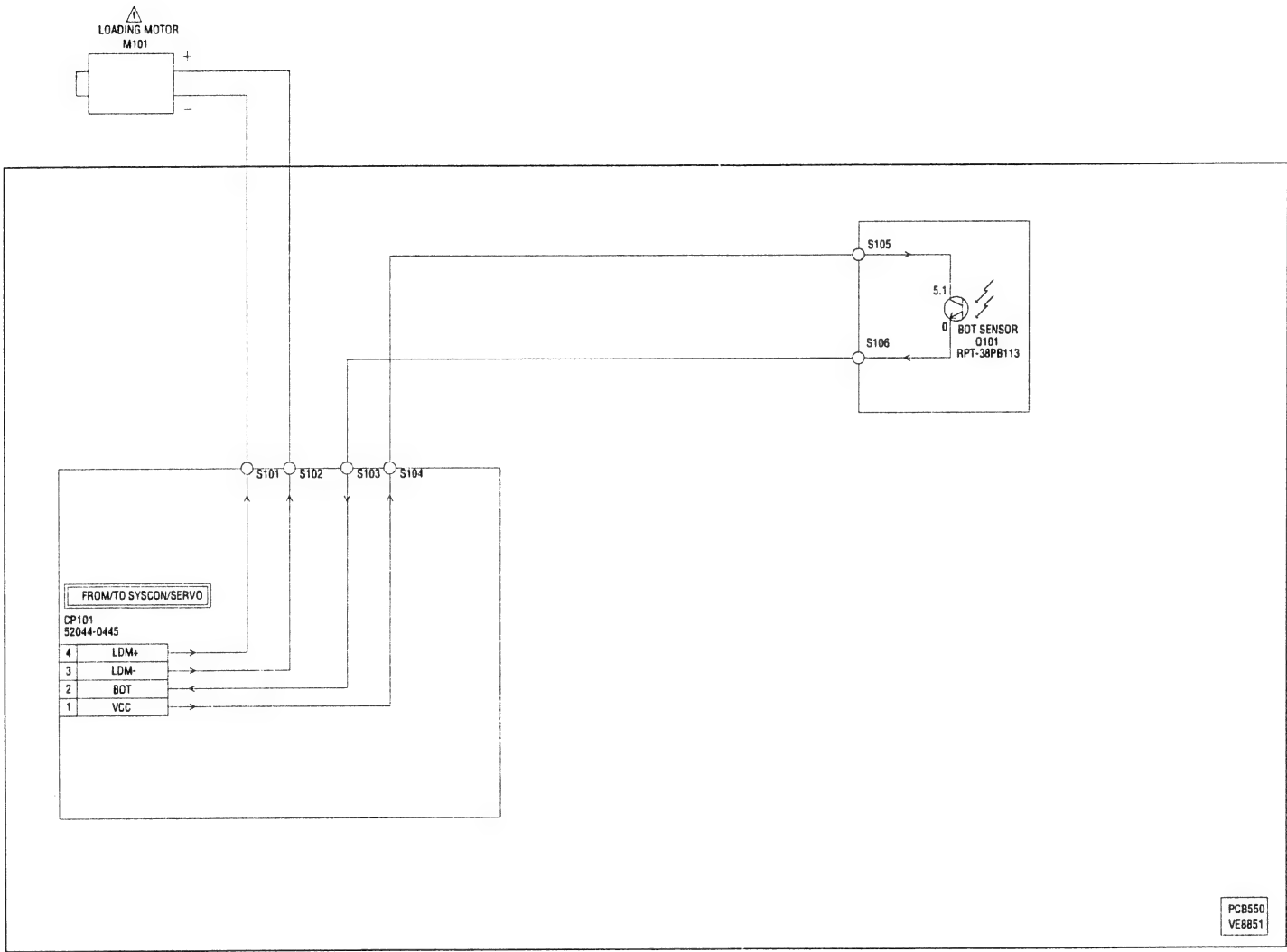
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

← AUDIO SIGNAL(REC)

PCB010
VMX179

DECK SCHEMATIC DIAGRAM (DECK PCB)



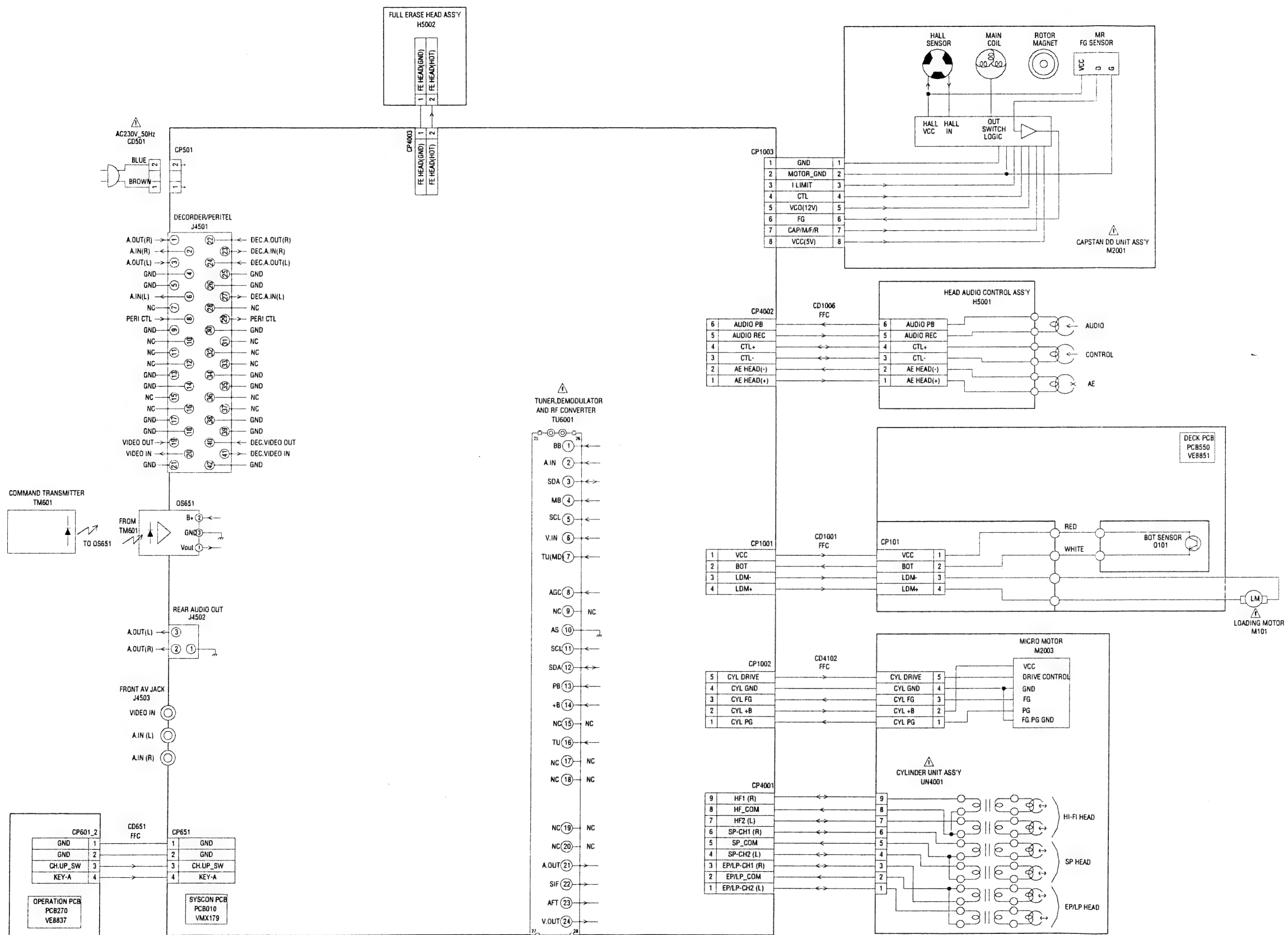
CAUTION: SINCE THESE PARTS MARKED BY ARE
CRITICAL FOR SAFETY, USE ONES
DESCRIBED IN PARTS LIST ONLY.


ATTENTION: LES PIÈCES RÉPARÉES PAR UN ÉTANT
DANGEREUSES AU POINT DE VUE SÉCURITÉ
N'UTILISER QUE CELLES DÉCRITES
DANS LA NOMENCLATURE DES PIÈCES.

NOTE: THE DC VOLTAGE AT EACH PART WAS
MEASURED WITH THE DIGITAL TESTER
DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME
OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

INTERCONNECTION DIAGRAM



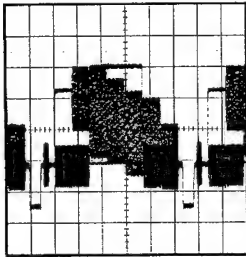
ATTENTION: LES PIÈCES RÉPARÉES PAR UN  ÉTANT DANGEREUSES AU POINT DE VUE SÉCURITÉ N'UTILISER QUE CELLES DÉCRITES DANS LA NOMENCLATURE DES PIÈCES.

CAUTION: SINCE THESE PARTS MARKED BY  ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

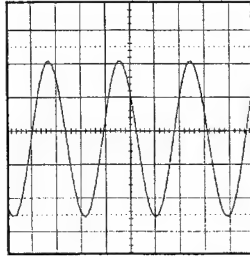
NOTE: THIS INTERCONNECTION DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE .

WAVEFORMS

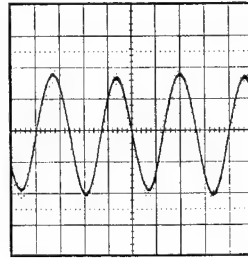
Y/C/AUDIO/HEAD AMP



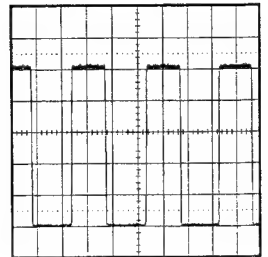
① REC
0.5V 10U/div



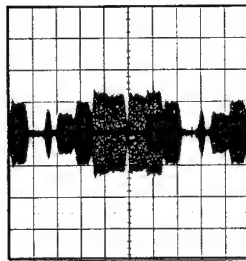
⑥ REC
10V 5U/div



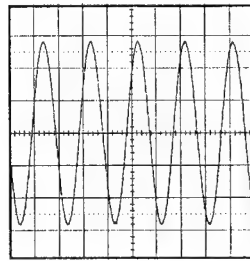
⑪ REC, PB
0.5V 0.5V/div



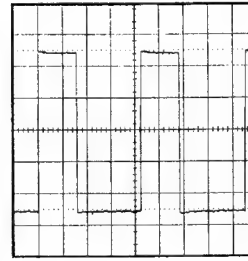
⑰ REC, PB
1V 0.5s/div



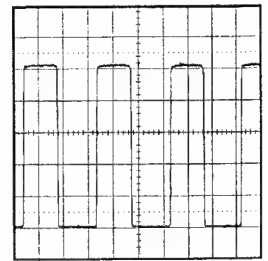
② PB
200mV 10U/div



⑦ REC, PB
200mV 0.5V/div

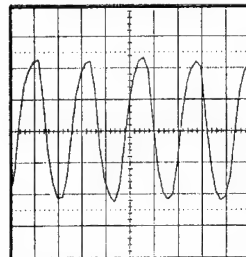


⑫ REC, PB
1V 5U/div

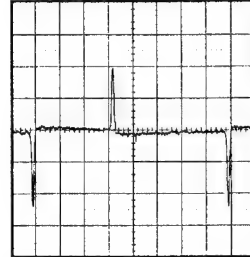


⑱ REC, PB
1V 0.5s/div

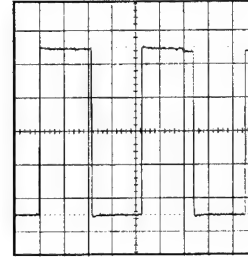
SYSCON/SERVO



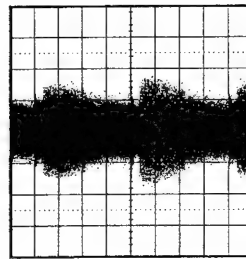
③ POWER ON
100mV 50T/div



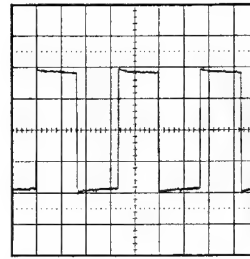
⑧ REC, PB
1V 5V/div



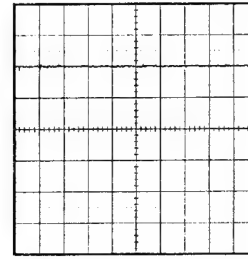
⑬ REC, PB
1V 5U/div



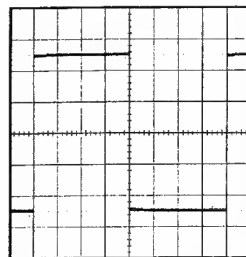
④ PB
100mV 5V/div



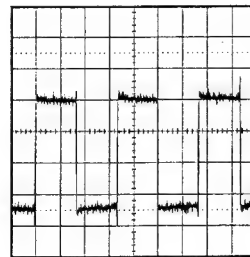
⑨ REC, PB
1V 0.5V/div



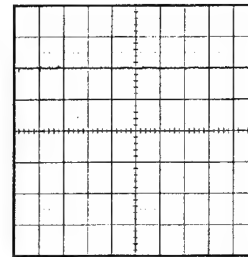
⑮ CASS. LESS
1V 10U/div



⑤ REC, PB
1V 5V/div



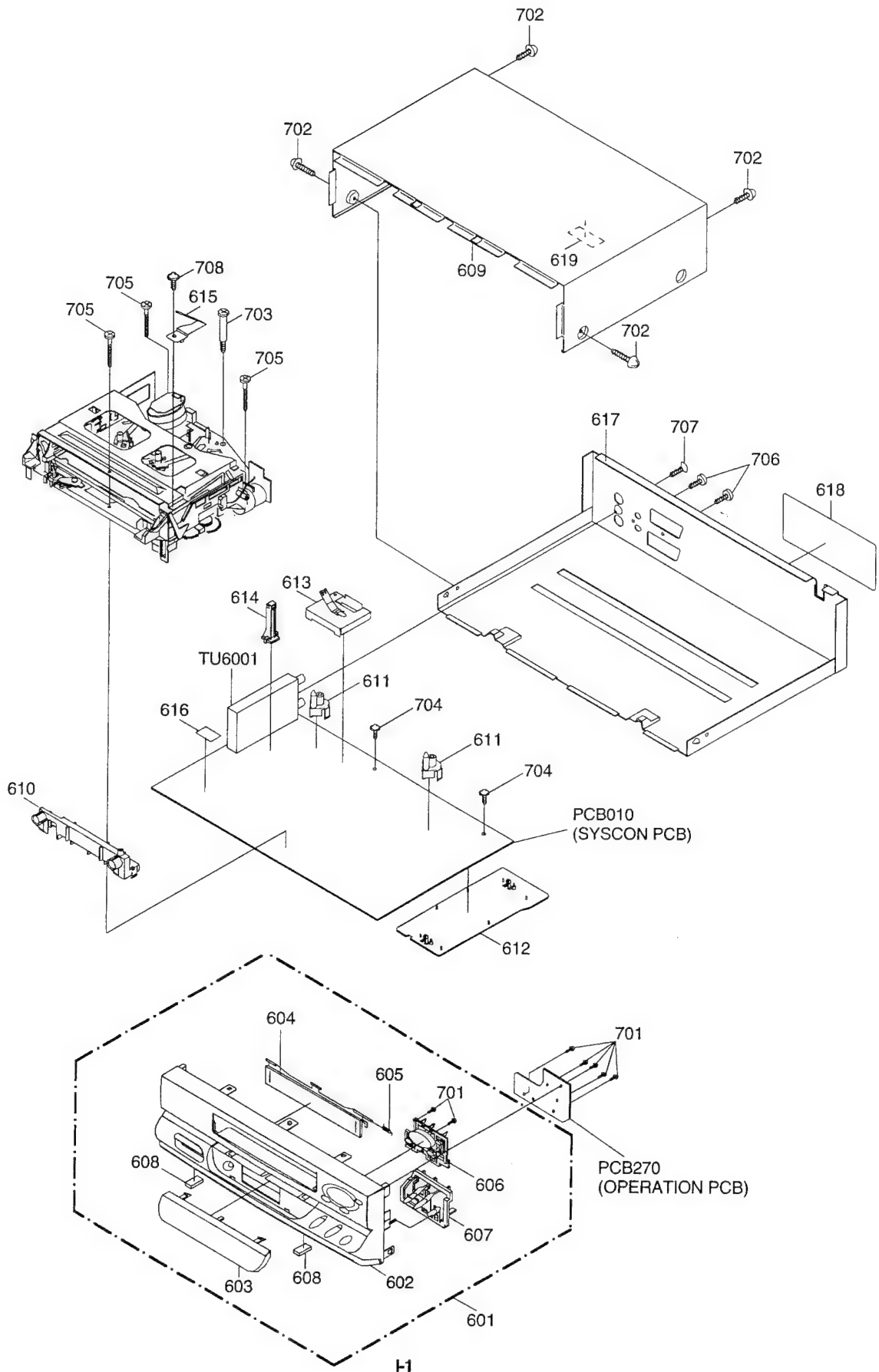
⑩ REC, PB
200mV 0.5V/div



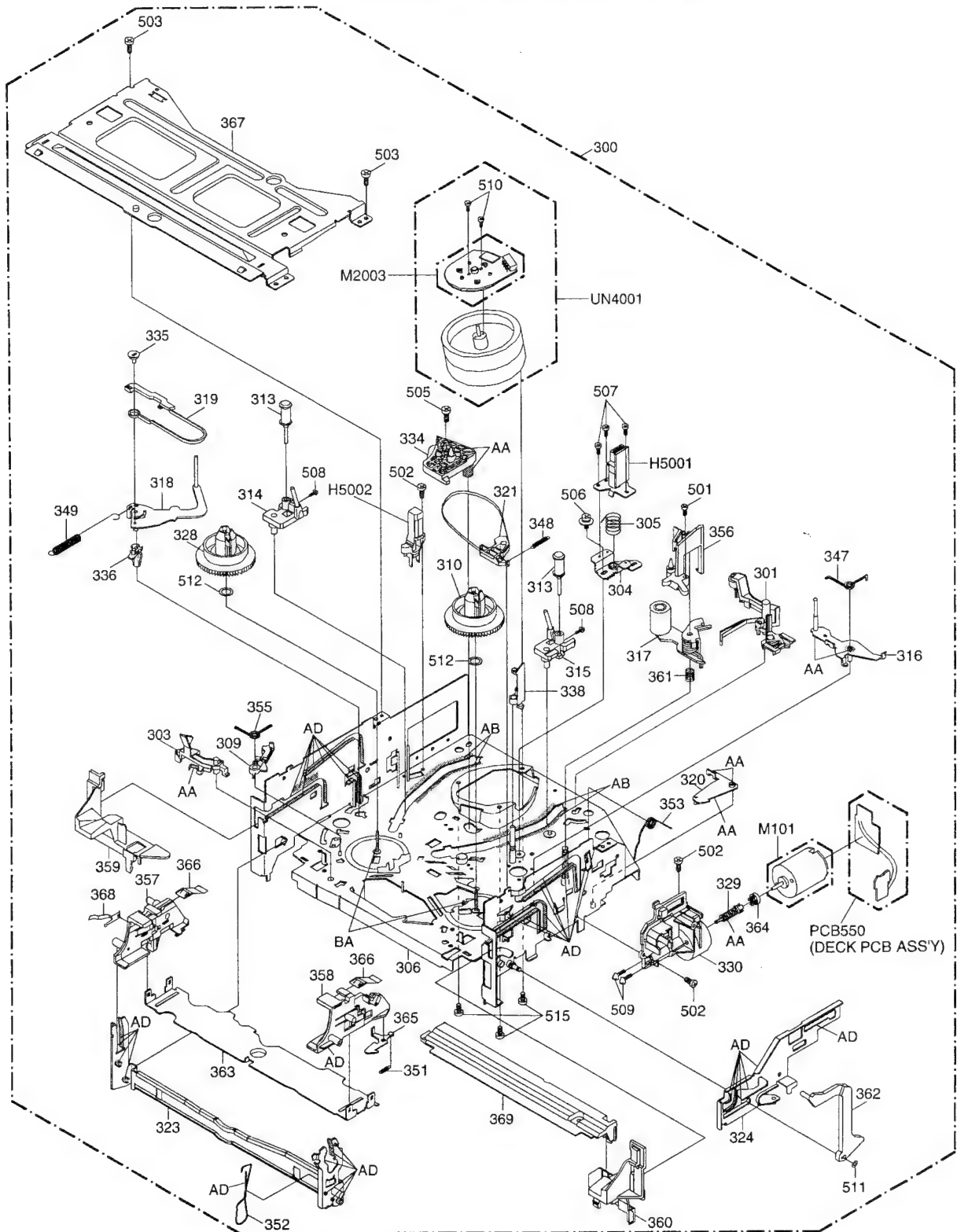
⑯ CASS. LESS
1V 10U/div

NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

MECHANICAL EXPLODED VIEW



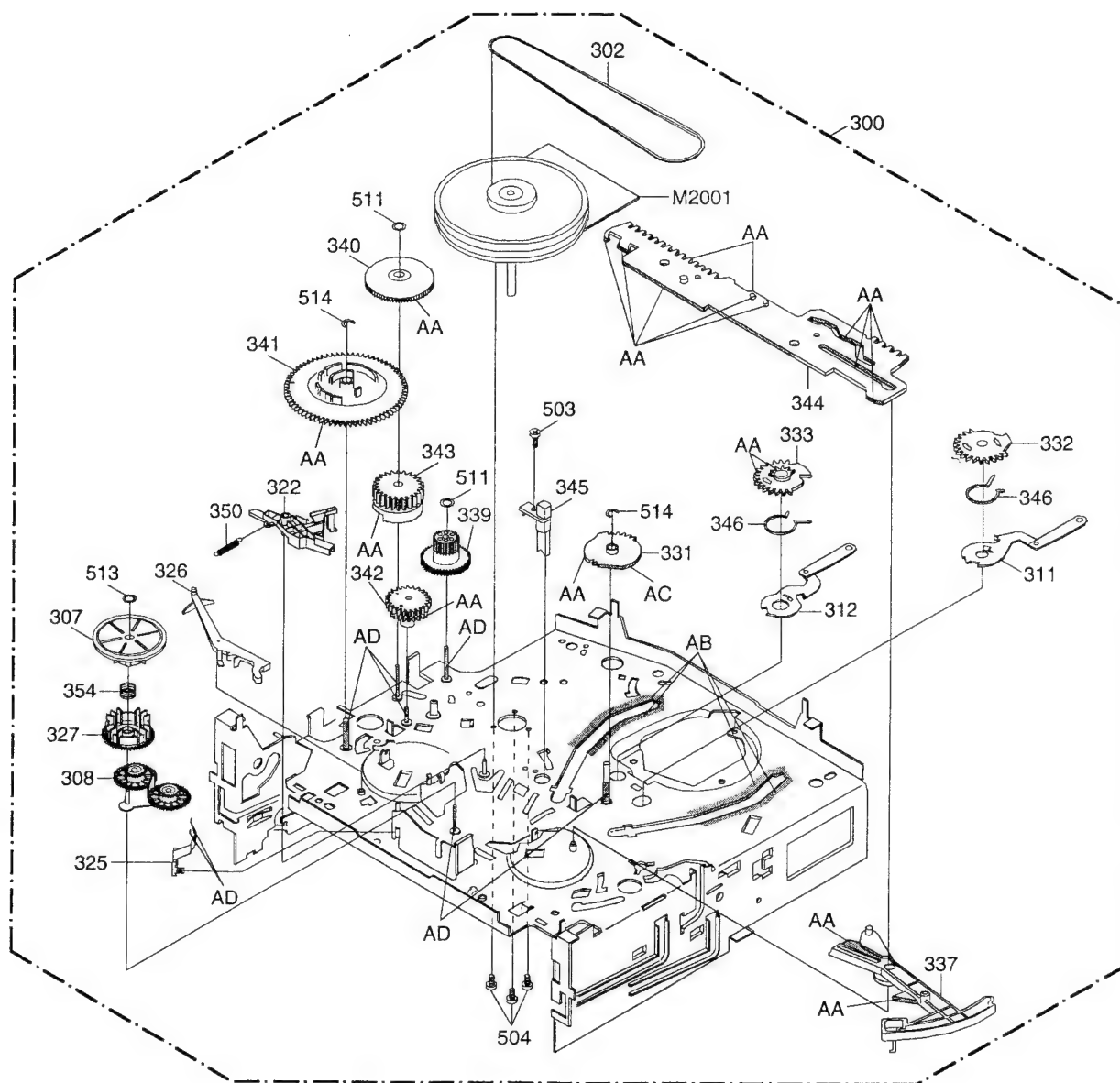
CHASSIS EXPLODED VIEW (TOP VIEW)



| CLASS | PART NO. | MARK |
|--------|-----------------|------|
| GREASE | G-555G | AA |
| | G-488M | AB |
| | FL-721 | AC |
| | MG-33 | AD |
| OIL | FL OIL No. 6115 | BA |

NOTE: Applying positions AA, AB, AC, AD and BA for the grease or oil are displayed for this section. Check if the correct grease or oil is applied for each position.

CHASSIS EXPLODED VIEW (BOTTOM VIEW)



| CLASS | PART NO. | MARK |
|--------|-----------------|------|
| GREASE | G-555G | AA |
| | G-488M | AB |
| | FL-721 | AC |
| | MG-33 | AD |
| OIL | FL OIL No. 6115 | BA |

NOTE: Applying positions AA, AB, AC, AD and BA for the grease or oil are displayed for this section. Check if the correct grease or oil is applied for each position.

MECHANICAL REPLACEMENT PARTS LIST

| REF. NO. | PART NO. | DESCRIPTION | | | |
|----------|------------|----------------------------|------|-------|--------------|
| 601 | A4D950B720 | CABINET,FRONT ASS'Y | | | |
| 602 | 701WPJB053 | CABINET,FRONT | | | |
| 603 | 711WPAA049 | PLATE,DISPLAY | | | |
| 604 | 712WPJA772 | FLAP | | | |
| 605 | 743WKAA001 | SPRING,FLAP | | | |
| 606 | 735WPJA038 | BUTTON,DECK (A) | | | |
| 607 | 735WPJA039 | BUTTON,DECK (B) | | | |
| 608 | 800WFA0041 | CUSHION,LEG | | | |
| 609 | 702WSBA014 | CABINET,TOP | | | |
| 610 | 701WPA0348 | HOLDER,DECK (A) | | | |
| 611 | 704WPA0007 | HOLDER,DECK (R) | | | |
| 612 | 755WPA0016 | PLATE,COVER POWER | | | |
| 613 | 752WSA0212 | SHIELD,CASE HEAD AMP ASS'Y | | | |
| 614 | 850P700036 | HOLDER,EOT SENSOR | | | |
| 615 | 753WUA0053 | SPRING,EARTH 3PIN | | | |
| 616 | 800WNA0006 | SYSCON,PVC | | | (10x10xT0.3) |
| 617 | 702WSAA011 | PLATE,BOTTOM | | | |
| 618 | 722A13A002 | SHEET,RATING | | | |
| 619 | 800WF00013 | FC SHEET | | | (15x20xT3) |
| 701 | 8110226804 | SCREW,TAP TITE (P) | BIND | 2.6x8 | |
| 702 | 8107240802 | SCREW,TAP TITE (S) | BIND | 4x8 | |
| 703 | 8146240644 | SCREW,TAP TITE (S) | BIND | 4x6 | |
| 704 | 8151230704 | SCREW,TAP TITE (S)-R | BIND | 3x7 | |
| 705 | 8107140B94 | SCREW,TAP TITE (S) | PAN | 4x29 | |
| 706 | 8110230604 | SCREW,TAP TITE (P) | BIND | 3x6 | |
| 707 | 8107230404 | SCREW,TAP TITE (S) | BIND | 3x4 | |
| 708 | 8107226604 | SCREW,TAP TITE(S) | BIND | 2.6x6 | |
| --- | JB5X0300 | POLYBAG | | | |
| --- | J4D95001 | INSTRUCTION BOOK | | | |
| --- | J4D95002 | GUARANTEE CARD | | | |
| --- | J4D95007 | QUICK SET-UP SHEET | | | |
| --- | 791UHDA001 | GIFT,SHEET | | | |
| --- | 792UHA0100 | PACKAGE | | | |
| --- | 795UCA0016 | CARTON,PAD | | | |

CHASSIS REPLACEMENT PARTS LIST

| REF. NO. | PART NO. | DESCRIPTION | REF. NO. | PART NO. | DESCRIPTION |
|----------|-------------|---------------------------|----------|------------|-------------------------------------|
| 300 | A4D938B420A | DECK ASSY A4D938B420A | 501 | 8107126A04 | SCREW,TAP TITE(S) PAN 2.6x10 |
| 301 | 850A500022 | AHC ASS'Y | 502 | 8107226804 | SCREW,TAP TITE(S) PAN 2.6x10 |
| 302 | 850P200290 | BELT,CAPSTAN (S) | 503 | 8107226604 | SCREW,TAP TITE(S) PAN 2.6x6 |
| 303 | 850P900710 | LEVER,REC | 504 | 8109126604 | SCREW,TAP TITE(B) PAN 2.6x6 |
| 304 | 850P500083 | BASE,AC HEAD | 505 | 810A126804 | SCREW/WASHER(A) M2.6x8 |
| 305 | 850P800324 | SPRING,AC HEAD | 506 | 810B126404 | SCREW/WASHER(B) M2.6x4 |
| 306 | 850A000367 | MAIN CHASSIS ASS'Y (S-Z) | 507 | 8102120604 | SCREW,PAN M2x6 |
| 307 | 850A200082 | CLUTCH ASS'Y(S2) | 508 | 8102120304 | SCREW,PAN M2x3 |
| 308 | 850A200080 | ARM IDLER ASS'Y (S) | 509 | 8102130304 | SCREW,PAN M3.0x3.0 |
| 309 | 850P600556 | ARM,SS BRAKE (S) | 510 | 810A123504 | SEMS A M2.3x5.0 |
| 310 | 850P200292 | REEL,T (S) | 511 | 82P266005N | POLYSLIDER WASHER(CUT) 2.6x6.0xT0.5 |
| 311 | 850A300061 | LOADING ARM S ASS'Y | 512 | 82Q2647C5N | POLYSLIDER WASHER 2.6x4.7xT0.25 |
| 312 | 850A300062 | LOADING ARM T ASS'Y | 513 | 82P184505N | POLYSLIDER WASHER(CUT) 1.8x4.5xT0.5 |
| 313 | 850A400208 | GUIDE ROLLER ASS'Y | 514 | 83ETW30000 | E-RING 3.0 |
| 314 | 850A400188 | BASE,INCL S ASS'Y | 515 | 810A126504 | SCREW/WASHER(A) M2.6x5 |
| 315 | 850A400196 | BASE,INCL T(S) ASS'Y | CP101 | 069R740018 | CONNECTOR PCB SIDE 52044-0445 |
| 316 | 850A400199 | P5-3 ARM ASS'Y(S) | H5001 | 1523D91034 | HEAD (AUDIO CONTROL) HVMXA1072A |
| 317 | 850A400205 | PINCH ROLLER BLOCK | H5002 | 1543D02013 | HEAD (FULL ERASE) HVFHP0032A |
| 318 | 850A400202 | TENSION ARM ASS'Y (WT) | M101 | 1596P78001 | MOTOR (LOADING) MXN13FB11H |
| 319 | 850A400184 | TENSION BAND ASS'Y (S) | M2001 | 1594J98008 | CAPSTAN DD UNIT EP15BC |
| 320 | 850A400178 | PINCH ROLLER LEVER ASS'Y | M2003 | 1589V11007 | MICRO MOTOR EP14BD |
| 321 | 850A600196 | BRAKE T ASSY(S) | PCB550 | A4C831B550 | DECK PCB ASS'Y VE8851 |
| 322 | 850A600191 | CAP BRAKE ASS'Y(S) | Q101 | 0000700320 | TRANSISTOR,PHOTO RPT-38PB113 |
| 323 | 850A900213 | LINK ASS'Y | UN4001 | A4D4A1B500 | CYLINDER UNIT ASSY A4D4A1B500 |
| 324 | 850A900216 | LINK LEVER ASS'Y | | | |
| 325 | 850P200284 | LEVER,CLUTCH (S) | | | |
| 326 | 850P200285 | ACTUATOR,CLUTCH | | | |
| 327 | 850P200298 | GEAR,COUPLING(S2) | | | |
| 328 | 850P200291 | REEL,S (S) | | | |
| 329 | 850P600541 | WORM | | | |
| 330 | 850P600563 | BRACKET,MOTOR | | | |
| 331 | 850P300178 | GEAR,MAIN LOADING | | | |
| 332 | 850P300179 | GEAR,LOADING S | | | |
| 333 | 850P300180 | GEAR,LOADING T | | | |
| 334 | 850P300187 | HOLDER,LOADING GEAR (S-Z) | | | |
| 335 | 850P400472 | ADJUST,TENSION | | | |
| 336 | 850P400492 | HOLDER,TENSION | | | |
| 337 | 850P400490 | LEVER,TENSION | | | |
| 338 | 850P400475 | COVER,P4 | | | |
| 339 | 850P600543 | GEAR,JOINT | | | |
| 340 | 850P600544 | GEAR,MIDDLE | | | |
| 341 | 850P600554 | CAM,MAIN (S) | | | |
| 342 | 850P600546 | CAM,P5 | | | |
| 343 | 850P600565 | CAM,PINCH ROLLER | | | |
| 344 | 850P600561 | ROD,MAIN(S) | | | |
| 345 | 850P700035 | REFLECTOR,LED | | | |
| 346 | 850P800318 | SPRING,LOADING GEAR | | | |
| 347 | 850P800334 | SPRING,P5 (S) | | | |
| 348 | 850P800335 | SPRING,BRAKE T (S) | | | |
| 349 | 850P800322 | SPRING,TENSION | | | |
| 350 | 850P800336 | SPRING,CAP BRAKE (S) | | | |
| 351 | 850P800342 | SPRING,LOCKER (S) | | | |
| 352 | 850P800326 | SPRING,LINK | | | |
| 353 | 850P800328 | SPRING,DAMPER | | | |
| 354 | 850P800330 | SPRING,RING | | | |
| 355 | 850P800337 | SPRING,SS BRAKE (S) | | | |
| 356 | 850P900680 | OPENER CASS | | | |
| 357 | 850P900731 | CASS SIDE L | | | |
| 358 | 850P900732 | CASS SIDE R | | | |
| 359 | 850P900728 | TAPE GUIDE L(P,R) | | | |
| 360 | 850P900729 | TAPE GUIDE R | | | |
| 361 | 850P800341 | SPRING,P/R ARM | | | |
| 362 | 850P900688 | LEVER,FLAP | | | |
| 363 | 850P900690 | CASS HOLDER | | | |
| 364 | 850P600540 | DRIVER,WORM | | | |
| 365 | 850P900713 | LOCKER,R2 | | | |
| 366 | 850P900694 | SPRING,PACK | | | |
| 367 | 850P900695 | BRACKET,TOP | | | |
| 368 | 850P900696 | SPRING,CASS EARTH | | | |
| 369 | 850P000467 | COVER,DECK | | | |

ELECTRICAL REPLACEMENT PARTS LIST

| REF. NO. | PART NO. | DESCRIPTION | REF. NO. | PART NO. | DESCRIPTION |
|--------------------|-------------|---------------------------------------|--------------------------------|------------|---|
| RESISTORS | | | TRANSISTORS | | |
| △ R503 | R655U4010J | R, FUSE 1 OHM 1/4W | △ Q512 | TB3001201S | TRANSISTOR, SILICON 2SB1201S |
| △ R504 | R3X181221J | R, METAL OXIDE 220 OHM 1W | Q513 | T8YJ2412K0 | TRANSISTOR, SILICON 2SC2412KT146(R,S) |
| △ R505 | R3X18A823J | R, METAL 82K OHM 2W | Q651 | T8YJ2412K0 | TRANSISTOR, SILICON 2SC2412KT146(R,S) |
| △ R507 | R3X1811R8J | R, METAL 1.8 OHM 1W | Q1001 | 0002M00570 | PHOTO COUPLER SG-260 |
| △ R518 | R3X181220J | R, METAL OXIDE 22 OHM 1W | Q1002 | 0000100380 | PHOTO TRANSISTOR PNA2604M010R |
| △ R521 | R65584221J | R, FUSE 220 OHM 1/4W | Q1003 | 0002M00570 | PHOTO COUPLER SG-260 |
| CAPACITORS | | | Q1004 | TNYJC05001 | COMPOUND TRANSISTOR DTC124EKAT146 |
| △ C501 | P2122B104M | CMP 0.1 UF 250V ECQUL | Q1005 | T8YJ2412K0 | TRANSISTOR, SILICON 2SC2412KT146(R,S) |
| △ C503 | CB3LE0ML3M | CC 0.0033UF 250V | Q1006 | 0002700530 | PHOTO COUPLER RPI-352Q01R |
| △ C507 | CB3930ML3M | CC 0.0033UF 250V | Q1007 | 0002700530 | PHOTO COUPLER RPI-352Q01R |
| △ C508 | E02AFH680M | CE 68 UF 400V | Q1008 | TNYJC05001 | COMPOUND TRANSISTOR DTC124EKAT146 |
| DIODES | | | Q1009 | TNYJC05001 | COMPOUND TRANSISTOR DTC124EKAT146 |
| D502 | D1VT001330 | DIODE, SILICON 1SS133T-77 | Q4001 | TD3T007340 | TRANSISTOR, SILICON 2SD734(E,F)-AA or |
| △ D503 | D2LXE65800 | DIODE, SILICON 1N4005E-6580-G23 | | TC5T021204 | TRANSISTOR, SILICON 2SC2120Y(TPE2) |
| △ D504 | D2LXE65800 | DIODE, SILICON 1N4005E-6580-G23 | Q4002 | TD3T007340 | TRANSISTOR, SILICON 2SD734(E,F)-AA or |
| △ D505 | D2LXE65800 | DIODE, SILICON 1N4005E-6580-G23 | | TC5T021204 | TRANSISTOR, SILICON 2SC2120Y(TPE2) |
| △ D506 | D2LXE65800 | DIODE, SILICON 1N4005E-6580-G23 | Q4003 | TNYJA05001 | COMPOUND TRANSISTOR DTC143EKAT146 |
| D507 | D23TGP15D0 | DIODE, SILICON RGP15D-G23 | Q4004 | TD3T007340 | TRANSISTOR, SILICON 2SD734(E,F)-AA or |
| D508 | D1VT001330 | DIODE, SILICON 1SS133T-77 | | TC5T021204 | TRANSISTOR, SILICON 2SC2120Y(TPE2) |
| D511 | D2LTP10KE0 | DIODE, SILICON RGP10KE-G3 | Q4005 | TPYJC05001 | COMPOUND TRANSISTOR DTA124EKAT146 |
| D512 | D97U06R21B | DIODE, SILICON MTZJ6.2B T-77 or | Q4006 | TC3T033310 | TRANSISTOR, SILICON 2SC3331(S,T,U)-A or |
| | D92UA6R2B2 | DIODE, ZENER RD6.2ES AB2 | | TC5T018154 | TRANSISTOR, SILICON 2SC1815Y(TPE2) |
| △ D513 | D97U030301C | DIODE, ZENER MTZJ33C T-77 | Q4007 | TC3T033310 | TRANSISTOR, SILICON 2SC3331(S,T,U)-A or |
| D514 | D1VT001330 | DIODE, SILICON 1SS133T-77 | | TC5T018154 | TRANSISTOR, SILICON 2SC1815Y(TPE2) |
| D515 | D1VT001330 | DIODE, SILICON 1SS133T-77 | Q4501 | TNYJB05001 | COMPOUND TRANSISTOR DTC114EKAT146 |
| △ D516 | D2LKB340L0 | DIODE, SCHOTTKY SB340L-6737 | Q4801 | T8YJ2412K0 | TRANSISTOR, SILICON 2SC2412KT146(R,S) |
| D517 | D23TPG06D0 | DIODE, SILICON RMPG06D-G3 | Q4802 | T6YJ1037K0 | TRANSISTOR, SILICON 2SA1037AKT146(R,S) |
| △ D518 | D28T11ESN1 | DIODE, SILICON 11ES1N-TA1B2 | COILS & TRANSFORMER | | |
| D519 | D1VT001330 | DIODE, SILICON 1SS133T-77 | L501 | 021W7A220K | COIL 22 UH or |
| △ D521 | D93T11601A | DIODE, ZENER TMPG06-16A-G3 | | 021W66220M | COIL, CHOKE 22 UH |
| △ D522 | D97U04R71B | DIODE, ZENER MTZJ4.7B T-77 | L502 | 021W7A220K | COIL 22 UH or |
| △ D523 | D97U03001B | DIODE, ZENER MTZJ30B T-77 | | 021W66220M | COIL, CHOKE 22 UH |
| D524 | D23TPG06D0 | DIODE, SILICON RMPG06D-G3 | △ L503 | 029T000083 | COIL, LINE FILTER 0R3A433F20 |
| D526 | D28TQ04N0 | DIODE, SCHOTTKY 11EQS04N-TA1B2 | L4001 | 0316160028 | COIL, BIAS OSC 1616002 |
| D527 | D97U01201B | DIODE, ZENER MTZJ12B T-77 | L4002 | 02167F101J | COIL 100 UH |
| D528 | D2LFRGP30D | DIODE, RECTIFIER RGP30DL-6801 | L4003 | 02167F101J | COIL 100 UH |
| D529 | D2LTGP15M0 | DIODE, RECTIFIER GP15M-G23 | L4004 | 02167F101J | COIL 100 UH |
| D1001 | D2LXE65800 | DIODE, SILICON 1N4005E-6580-G23 | L4005 | 02167F101J | COIL 100 UH |
| D1002 | D93T11201A | DIODE, ZENER TMPG06-12A-G3 | L4006 | 0316160018 | COIL, BIAS OSC 1616001 |
| D1003 | D2LXE65800 | DIODE, SILICON 1N4005E-6580-G23 | L4007 | 021LA6271K | COIL 270 UH |
| D1004 | D1VT001330 | DIODE, SILICON 1SS133T-77 | L4008 | 02167F101J | COIL 100 UH |
| D1005 | 0010600060 | LED SID1050CM | L4009 | 021LA6120K | COIL 12 UH |
| D1006 | D2LXE65800 | DIODE, SILICON 1N4005E-6580-G23 | L4010 | 021LA6221K | COIL 220 UH |
| D1007 | D1VT001330 | DIODE, SILICON 1SS133T-77 | L4011 | 02167F101J | COIL 100 UH |
| D1009 | D2LXE65800 | DIODE, SILICON 1N4005E-6580-G23 | L4012 | 021LA6390K | COIL 39 UH |
| D1010 | D2LXE65800 | DIODE, SILICON 1N4005E-6580-G23 | L4013 | 02167F101J | COIL 100 UH |
| D4001 | D1VT001330 | DIODE, SILICON 1SS133T-77 | L4502 | 02167F101J | COIL 100 UH |
| D4003 | D97U06R81B | DIODE, ZENER MTZJ6.8B T-77 or | L4511 | 021LA6100K | COIL 10 UH |
| | D97U06R21A | DIODE, ZENER MTZJ6.2A T-77 or | L4512 | 021LA6100K | COIL 10 UH |
| | D97U06R21C | DIODE, ZENER MTZJ6.2C T-77 | L4513 | 021LA6100K | COIL 10 UH |
| D4503 | D97U01501B | DIODE, ZENER MTZJ15B T-77 | L4801 | 02167F101J | COIL 100 UH |
| D4505 | D97U06R81B | DIODE, ZENER MTZJ6.8B T-77 or | L4802 | 02167F101J | COIL 100 UH |
| | D97U06R21A | DIODE, ZENER MTZJ6.2A T-77 or | L4803 | 02167F101J | COIL 100 UH |
| | D97U06R21C | DIODE, ZENER MTZJ6.2C T-77 | L4804 | 021LA6330K | COIL 33 UH |
| ICs | | | L4805 | 021LA6220K | COIL 22 UH |
| △ IC501 | I0Q90431L0 | IC NJM431L | L4806 | 021LA6390K | COIL 39 UH |
| IC651 | I07F529770 | IC BU2977FS | L5501 | 02167F101J | COIL 100 UH |
| △ IC1001 | I07SQ69550 | IC BA6955N | L5502 | 02167F101J | COIL 100 UH |
| IC1002 | I56F57051A | IC OEC7051A | L6001 | 02167F220J | COIL 22 UH |
| IC1003 | IC7J0311A0 | IC R311N311A/C-TR | L6002 | 02167F101J | COIL 100 UH |
| IC1099 | A4D938B015 | IC S-24C08ADPA-01 | △ T501 | 0481300029 | TRANSFORMER, SWITCHING 8130002 |
| IC4001 | I04F38217F | IC HA118217F | JACKS | | |
| IC4501 | I03F071580 | IC LA7158M | J4501 | 063G100041 | SOCKET, 21PIN 035_0_8083_00 |
| IC4502 | I0QF021500 | IC NJM2150AM | J4502 | 0602411008 | RCA, JACK JPJ1195-010320 |
| IC4801 | I53F4775M0 | IC LC74775M | J4503 | 0607431012 | JACK, RCA 3.5 LPR1251-0500 |
| IC5501 | I0KF79605H | IC TDA9605H | SWITCHES | | |
| IC6601 | I0KFA9873H | IC TDA9873H | SW601 | 0504201T32 | SWITCH, TACT SKQNAED010 |
| TRANSISTORS | | | SW602 | 0504201T32 | SWITCH, TACT SKQNAED010 |
| △ Q501 | TD3T007340 | TRANSISTOR, SILICON 2SD734(E,F)-AA or | SW603 | 0504201T32 | SWITCH, TACT SKQNAED010 |
| △ Q503 | TC5T021204 | TRANSISTOR, SILICON 2SC2120Y(TPE2) | SW604 | 0504201T32 | SWITCH, TACT SKQNAED010 |
| △ Q504 | 0002500560 | PHOTO COUPLER TLP621(D4-GR-LF2) | SW605 | 0504201T32 | SWITCH, TACT SKQNAED010 |
| Q505 | TNYJA05001 | COMPOUND TRANSISTOR DTC143EKAT146 | SW606 | 0504201T32 | SWITCH, TACT SKQNAED010 |
| △ Q506 | T8WT009260 | TRANSISTOR, SILICON 2SB926(S,T)-AA or | SW607 | 0504201T32 | SWITCH, TACT SKQNAED010 |
| | TAAT01273Y | TRANSISTOR, SILICON KTA1273_Y | SW608 | 0504201T32 | SWITCH, TACT SKQNAED010 |
| Q511 | TC5T018154 | TRANSISTOR, SILICON 2SC1815Y(TPE2) or | SW1001 | 0508221001 | SWITCH (LEAF) SPVF130100 |
| | TCATC31980 | TRANSISTOR, SILICON KTC3198-AT(Y,GR) | P.C. BOARD ASSEMBLIES | | |
| | | | PCB010 | A4D950B01A | PCB ASS'Y VMX179C |

ELECTRICAL REPLACEMENT PARTS LIST

| REF. NO. | PART NO. | DESCRIPTION | |
|----------------------|------------|------------------------------------|------------------|
| P.C.BOARD ASSEMBLIES | | | |
| PCB270 | A4D918B27A | PCB ASSY | VE8837B |
| PCB550 | A4C831B550 | SEE CHASSIS REPLACEMENT PARTS LIST | |
| MISCELLANEOUS | | | |
| B501 | 024AT03655 | CORE, BEADS | BL01RN1-A63T6 |
| B502 | 024AT03655 | CORE, BEADS | BL01RN1-A63T6 |
| BT601 | 1412004008 | BATTERY, MANGAN | R03(AB)E_20_T |
| CD501 | 1206655816 | CORD, AC | 06655816 |
| CD651 | 122F040904 | CORD, JUMPER | 2F040904 |
| CP501 | 069X320409 | CORD, UX CONNECTOR | B2P3-VH |
| CP601 | 069J740019 | CONNECTOR PCB SIDE | IMSA-9604S-04Z13 |
| CP651 | 069J740029 | CONNECTOR PCB SIDE | IMSA-9604S-04Z14 |
| CD1001 | 122F040904 | CORD, JUMPER | 2F040904 |
| CD1006 | 122F061501 | CORD, JUMPER | 2F061501 |
| CD4102 | 122F051702 | CORD, JUMPER | 2F051702 |
| CD6002 | 06CDL02002 | RF, CABLE PAL FTZ | CDL02002 |
| CP1001 | 069J740029 | CONNECTOR PCB SIDE | IMSA-9604S-04Z14 |
| CP1002 | 069J750029 | CONNECTOR PCB SIDE | IMSA-9604S-05Z14 |
| CP1003 | 0697280590 | CONNECTOR PCB SIDE | TMC-J08P-B1 |
| CP4001 | 0697290620 | CONNECTOR PCB SIDE | TOC-C09X-A1 |
| CP4002 | 069J760029 | CONNECTOR PCB SIDE | IMSA-9604S-06Z14 |
| CP4003 | 0697120320 | CONNECTOR PCB SIDE | TMC-T02X-E1 |
| CUS011 | 800WF00019 | CUSHION-C | |
| CUS012 | 800WF00004 | CUSHION-A | |
| F501 | 080PT1R602 | FUSE | 21801.6 |
| FH501 | 06710T0006 | HOLDER,FUSE | EYF-52BC |
| FH502 | 06710T0006 | HOLDER,FUSE | EYF-52BC |
| OS651 | 077Q000018 | REMOTE RECEIVER | PIC26043LO |
| TM601 | 07660DK030 | TRANSMITTER | SBHR00503A |
| TU6001 | 0162K01024 | RF, UNIT | TCMB0601PD11D |
| | 0162601021 | RF, UNIT | TMDG2-603A |
| V651 | 096779R005 | TUBE FLUORSCENT DISPL | 7-MT-201GA |
| X1001 | 100CT01207 | CRYSTAL HC-49/U-S | 12MHz |
| X1002 | 100DA32R01 | CRYSTAL DT-26 | 32.768KHz |
| X4001 | 100CT4R407 | CRYSTAL HC-49/U | 4.433619MHz |
| X6602 | 100CT4R009 | CRYSTAL HC-49/U | 4MHz |

RESISTOR

RC..... CARBON RESISTOR

CAPACITORS

CC..... CERAMIC CAPACITOR
CE..... ALUMI ELECTROLYTIC CAPACITOR
CP..... POLYESTER CAPACITOR
CPP..... POLYPROPYLENE CAPACITOR
CPL..... PLASTIC CAPACITOR
CMP..... METAL POLYESTER CAPACITOR
CMPL..... METAL PLASTIC CAPACITOR
CMPP..... METAL POLYPROPYLENE CAPACITOR

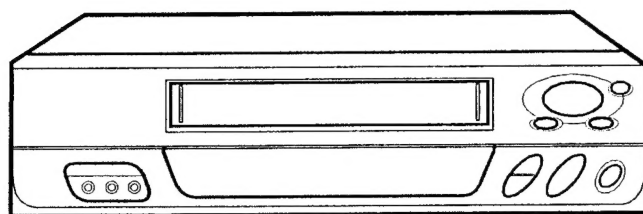
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|----------|----------|
| SPEC.NO. | M4D9-50B |
| O/R NO. | U094510 |

TEVION®

MD9025 SILVER

SERVICE MANUAL

VIDEO CASSETTE RECORDER



SUPPLEMENT CHASSIS CODE A

This SUPPLEMENT must be used together SERVICE MANUAL for MD9025.
All other test and repair procedures are as shown in the ORIGINAL MANUAL.
Please file this SUPPLEMENT with the ORIGINAL VERSIONS.

ELECTRICAL REPLACEMENT PARTS LIST

| REF. NO. | MD9025 | | MD9025 SILVER | |
|----------|------------|------------------------|---------------|------------------------|
| | PART NO. | DESCRIPTION | PART NO. | DESCRIPTION |
| TM601 | 07660DK030 | TRANSMITTER SBHR00503A | 07660DK040 | TRANSMITTER SBHR00504A |

MECHANICAL REPLACEMENT PARTS LIST

| REF. NO. | MD9025 | | MD9025 SILVER | |
|----------|------------|----------------------|---------------|----------------------|
| | PART NO. | DESCRIPTION | PART NO. | DESCRIPTION |
| 601 | A4D950B720 | CABINET, FRONT ASS'Y | A4D953B720 | CABINET, FRONT ASS'Y |
| 602 | 701WPJB053 | CABINET, FRONT | 701WPJB080 | CABINET, FRONT |
| 604 | 712WPJA772 | FLAP | 712WPJA793 | FLAP |
| 606 | 735WPJA038 | BUTTON, DECK (A) | 735WPJA280 | BUTTON, DECK (A) |
| 607 | 735WPJA039 | BUTTON, DECK (B) | 735WPJA281 | BUTTON, DECK (B) |
| 609 | 702WSBA014 | CABINET, TOP | 702WSBA025 | CABINET, TOP |

| | |
|----------|----------|
| SPEC.NO. | M4D9-53B |
| O/R NO. | U0X4542 |